

3 0455 0002 4839 3



BLM ALASKA RESOURCES LIBRARY
SB483.N63U54
Noatak National Conservation Area : a pro

ALASKA RESOURCES LIBRARY
U.S. Department of the Interior



Noatak Proposed National Conservation Area

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT



SB
529
N59
P7
1973



ALASKA RESOURCES LIBRARY

U.S. Department of the Interior

A PROPOSAL

NOATAK

NATIONAL

CONSERVATION

AREA

Alaska State Office
Bureau of Land Management
May 1973

ARLIS
Alaska Resources Library & Information Services
Library Building, Suite 111
3211 Providence Drive
Anchorage, AK 99508-4614

PART I

**LEGISLATIVE PROPOSAL FOR THE
NOATAK NATIONAL CONSERVATION AREA**

A BILL

To provide for the establishment of the Noatak
National Conservation Area, Alaska

Be it enacted by the Senate and the House of Representatives
of the United States of America in Congress assembled, That in
order to preserve the outstanding natural resource values and to
manage and utilize the lands and other resources therein under a
program of multiple use, sustained yield, and environmental protection
and enhancement compatible with the provisions of section 3 of this
act, the Secretary of the Interior is authorized to establish within
the general area depicted on BLM Map No. 103 , dated May 11, 1973 , and
on file in the office of the Bureau of Land Management, Department
of the Interior, the Noatak National Conservation Area in the
State of Alaska.

SEC. 2. Definition of terms. As used in this Act:

(a) "Secretary" means the Secretary of the Interior.

(b) "Area" means the Noatak National Conservation Area.

(c) "National Conservation Area" means all lands and interests in
lands (including the renewable and nonrenewable resources thereof)
now and hereafter administered by the Secretary through the Bureau of
Land Management.

SEC. 3. Management.

(a) The Secretary shall manage the Area under the principles of
multiple use, sustained yield, and environmental protection for any

combination of uses.

(b) The Secretary shall permit hunting and fishing on federally-owned lands within the boundaries of the Area in accordance with applicable laws and regulations of the State of Alaska and the United States, except that the Secretary may designate zones where, and establish periods when, no hunting or fishing shall be permitted for reasons of fish and wildlife management, public safety, administration, or public use and enjoyment. Except in emergencies, regulations of the Secretary pursuant to this section shall be put into effect after consultation with the Alaska Department of Fish and Game.

(c) In managing the Area in accordance with the purposes of this Act, the Secretary may utilize such other statutory authorities as are available to him for conservation and management of the land, and the wildlife and other resources therein, as he deems appropriate for preservation, recreation, and resource development purposes.

SEC. 4. Mining and mineral development.

(a) Subject to valid existing rights, lands within the Area are withdrawn from location, entry, and patent under the United States mining laws. Within zones of the Area designated by him for such use, the Secretary may permit mining and mineral leasing in accordance with the United States mining and mineral leasing laws and in accordance with regulations issued pursuant to this Act provided that patents issued

under the mining laws pursuant to this section shall convey title to only the mineral deposits within the claim.

SEC. 5. Rules and regulations; unauthorized use.

(a) The Secretary is authorized to issue such rules and regulations as he deems necessary to carry out the purposes of this Act.

(b) The use, occupancy or development of any portion of the Area, contrary to any regulation of the Secretary or other responsible authority, or contrary to any order issued pursuant thereto is unlawful and prohibited.

SEC. 6. Enforcement.

(a) Any violation of regulations which the Secretary issues with respect to the management, protection, development of the Area and property located thereon and which the Secretary identified as being subject to this section shall be punishable by a fine of not more than \$500 or imprisonment for not more than six months, or both. Any person charged with a violation of such regulation may be tried and sentenced by any United States magistrate designated for that purpose by the court by which he was appointed, in the same manner and subject to the same conditions and limitations as provided for in Section 3401 of Title 18 of the United States Code.

(b) At the request of the Secretary, the Attorney General may institute a civil action in any United States district court for an injunction or other appropriate order to prevent any person from utilizing the area in violation of regulations issued under this Act.

(c) The Secretary may designate and authorize any employee to make arrests within the Area without warrant for any misdemeanor or violation

of any law or regulation committed in his presence or view, or for any felony if the arresting officer has probable cause to believe that the person arrested has committed or is committing such felony and a delay in obtaining a warrant would jeopardize the possibility of his apprehension. Such authorized employee may execute within the Area any warrant or other process issued by a court or officer of competent jurisdiction for the enforcement of the provisions of any Federal law or regulation. Such authorized employee, while engaged in carrying out his official duties, may carry such firearms as are authorized by the Secretary. Such employees may also pursue and arrest outside of the Area, a person fleeing from the Area to avoid an arrest or service of process which the employee is authorized to make within the Area.

(d) In connection with administration and regulation of the use and occupancy of the Area, the Secretary is authorized to cooperate with the regulatory and law enforcement officials of the State of Alaska, or a political subdivision thereof. Such cooperation may include reimbursement to the State or its subdivision for expenditures incurred by it in connection with activities which assist in the administration and regulation of use and occupancy of the area.

SEC. 7. Acquisition of lands.

(a) The Secretary of the Interior is authorized to acquire lands and interests in lands for inclusion in the Area by purchase, donation, purchase with donated funds, exchange or otherwise, provided that such lands and interests owned by the State of Alaska or its political subdivisions may be acquired only with consent of either the State or its political subdivisions, whichever the circumstances require.

(b) In exercise of his authority to acquire lands or interest in lands by exchange, the Secretary may convey in the State of Alaska any lands, or interests therein, under his administrative jurisdiction, which he determines to be suitable for disposition, when in his judgment the exchange will be in the public interest, and such lands are available to exchange under applicable laws. The values of the lands so exchanged shall be equal, or if they are not equal, the values shall be equalized by the payment of money to the grantor or to the Secretary as the circumstances require.

(c) In order to minimize payment of severance damages, the Secretary may acquire the whole of a tract or parcel which is located only partially inside the Area, and may exchange the portion outside the boundaries for land or interests in lands inside the boundaries.

(d) Notwithstanding any other provision of Law:

(1) The Secretary may administer as a part of the area any federally-owned lands under his administrative jurisdiction located within the Area, as depicted on BLM Map No. 103, dated May 11, 1973.

(2) Any other Federal property located within the Area so depicted may, with concurrence of the head of the agency having custody thereof, be transferred without consideration to the administrative jurisdiction of the Secretary for use in carrying out the provisions of this Act.

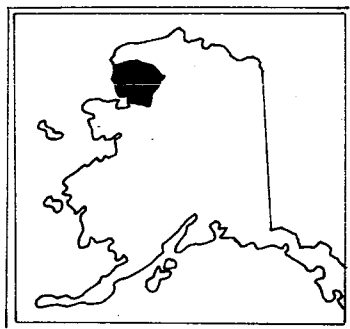
SEC. 8. Boundaries.

Boundaries of the Area shall be established by the Secretary by publication in the Federal Register. Such notice shall notify the public of availability and location of a map depicting the

area established, which shall be available for public inspection at appropriate offices of the Department of the Interior.

SEC 9. Appropriations.

There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act.

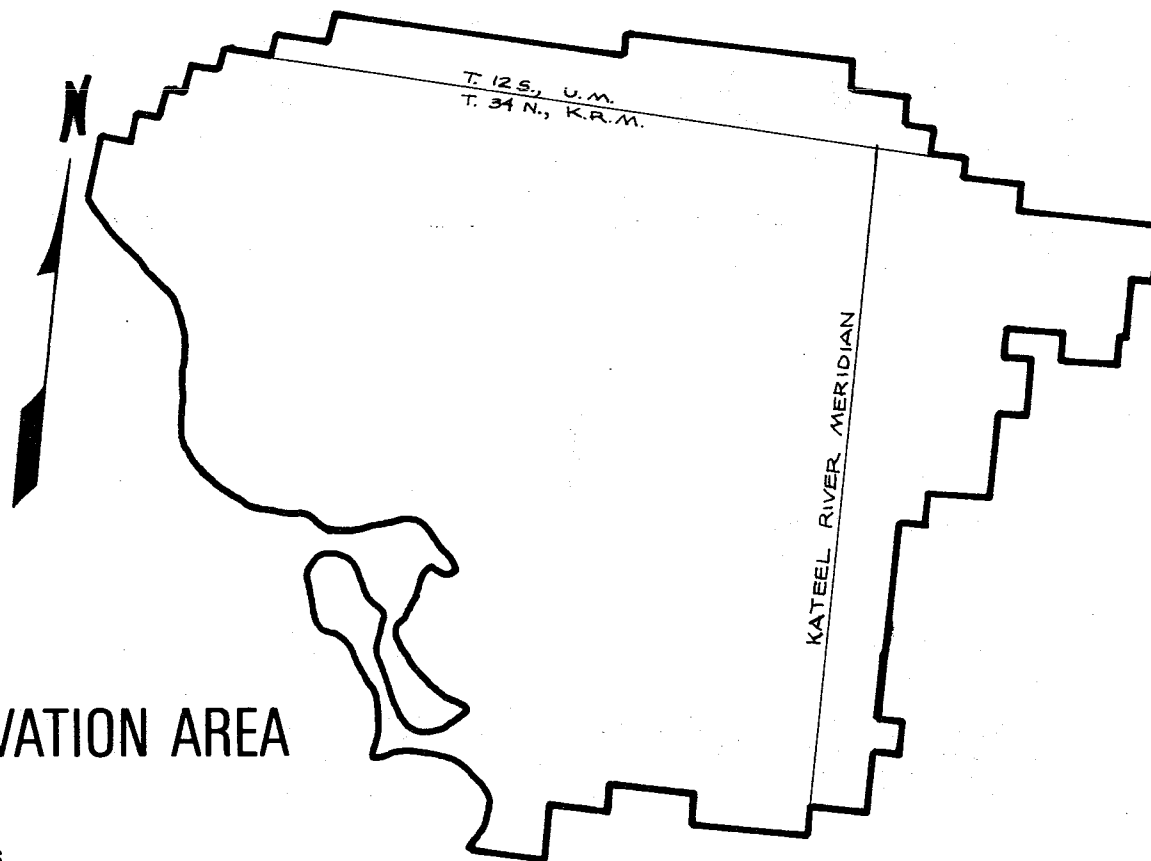


MAP NO. 103

MAY 11, 1973

NOATAK NATIONAL CONSERVATION AREA

one inch equals approximately forty miles



PART II

ENVIRONMENTAL ASSESSMENT

TABLE OF CONTENTS

	Page
INTRODUCTION.	1
I. DESCRIPTION OF THE PROPOSED ACTION.	2
A. Proposed Action	2
B. Purpose of Action	2
C. Objective of Action	2
D. Assumptions	2
E. Components of the Action That Will be Analyzed for Their Potential Impact on the Environment	3
1. Realty Transactions	3
2. Mineral Development	4
3. Range Management.	4
4. Forest Management	6
5. Watershed Management.	6
6. Wildlife Habitat Management	7
7. Recreation Management	7
8. Fire Presuppression and Suppression Actions	8
9. Road and Trail Construction	9
F. History and Background.	10
1. Relationship of Area to ANCSA	10
2. Relationship of Area to Land Use and Environmental Analysis.	11
II. DESCRIPTION OF THE ENVIRONMENT.	14
A. General	14
1. Geographic Location	14
2. Topography.	14
3. Climate	15
B. Aspects of the Environment that Could be Impacted.	15

	Page
1. Nonliving (abiotic)	15
a. Air	15
b. Land	16
c. Water	17
2. Living (biotic)	18
a. Plants (aquatic and terrestrial)	18
b. Animals (aquatic and terrestrial)	20
3. Ecological Interrelationships	22
a. Food Chain	22
b. Succession	22
c. Resiliency	24
4. Human Use and Settlement	26
a. Resource Use	26
b. Human Settlement	27
5. Aesthetic and Human Interest	27
a. Aesthetic (scenic)	27
b. Geological (unique)	28
c. Historical and Archeological (unique)	29
d. Cultural, Ethnic, and Religious(unique)	29
III. ANALYSIS OF PROPOSED ACTION	31
A. Unmitigated Impacts (Components of Proposed Action)	
1. Nonliving	31
2. Living	37
3. Ecological Interrelationships	42
4. Human Use	45
5. Aesthetic and Human Interest	45
B. Possible Mitigating Measures	47
C. Adverse Impacts That Cannot be Avoided	57

	Page
D. Relationship Between Short-Term Use and Long-Term Productivity.	61
E. Irreversible and Irretrievable Impacts and Commitments of Resources	65
IV. RECOMMENDATION FOR THE MITIGATION OF ENVIRONMENTAL IMPACTS	69
V. ALTERNATIVES TO THE PROPOSED ACTION.	71
A. No Action.	71
B. Limited Uses	74
C. Multiple Use - National Forest System.	86
VI. INTENSITY OF PUBLIC INTEREST AND CONTROVERSY	91

INTRODUCTION

Based on an ecosystem productivity study, the Bureau of Land Management has identified areas in Alaska where limited use or multiple use philosophy of management should prevail for the best long run public interest.

The Bureau of Land Management believes it is imperative to present its case for Federal ownership of lands under the Alaska Native Claims Settlement Act to the Secretary before long-range management options are foregone. The desired quality of management for some of the areas dictates that a special legislative and budgetary authority be prepared for the Bureau of Land Management.

Following is the environmental impact analysis for the multiple use management by the Bureau of Land Management as proposed in the legislation for the Noatak National Conservation Area.

I. DESCRIPTION OF THE PROPOSED ACTION

A. Proposed Action

The proposed action is the enactment of legislation to provide for the establishment of the Noatak National Conservation Area in the State of Alaska.

B. Purpose of Action

The purpose of the action is to attain, through recommendation by the Joint Federal-State Land Use Planning Commission, Secretarial determination and Congressional deliberation and approval for specific legislative and budgetary authority for the Bureau of Land Management to administer the proposed Noatak National Conservation Area for multiple use purposes.

C. Objective of the Action

The objectives of the action are to (1) protect and enhance important environmental values for present and future generations; (2) provide for the most efficient use of nonrenewable resources; and (3) return to the Federal government, both now and in the future, fair market value for the use of natural resources.

D. Assumptions Used

The following assumptions were used in assessing the mitigating measures for the potential environmental impact of the proposed action:

1. Congress will provide a well defined multiple use management policy for BLM.
2. Enabling legislation for management of the area will specifically provide for the following:
 - a. Arrest authority and the establishment of rule violation penalties,

- b. Exchange authority,
 - c. Acquisition authority,
 - d. Disposal authority,
 - e. Defined management boundary,
 - f. Classification authority,
 - g. Permit system for locatable minerals, and
 - h. Authorization for funding and appropriation of funds.
- 3. There will be no changes in mineral leasing laws.
 - 4. The National Environmental Policy Act requirements will be met.
- E. Components of the Action Analyzed for their Potential Impact on the Environment

1. Realty Transactions

Under the proposal realty transactions can be made to accommodate needs for easements, rights-of-way, establishment of new communities, expansion of existing communities, and intensive land uses for both public and private entities. Land needs for governmental use and for state land selections can also be accommodated. This proposal also provides for acquisition of land to further governmental programs by means of both purchase and exchange.

Before any major land disposals are considered, the area must be subject to a detailed resource analysis from which a logical, viable management framework plan is developed. Detailed plans, which may lead to realty transactions, are then necessary to fill out the framework and to make the area usable to the public.

Any land use normally entails some surface disturbance and could lead to lowering of air and water quality. Other resources may also be effected by any proposed land use.

2. Mineral Development

An objective is to make minerals in this highly mineralized area available for national use. Minerals are necessary to man's development and would be made available consistent with good planning. Although the area does not appear to be rich in the energy minerals, they, including the geothermal resources, would be made available consistent with planned development and local and national needs. Mineral development may result in a need for other surface use, with spin-off needs such as use of forest products and recreational uses. Development must therefore be carefully planned so as to consider all phases of mineral extraction, including those resulting from community development. Its effect on air must be considered and any degradation must be located as to have the least effect on the natural community.

3. Range Management

The Range Management program of the BLM includes inventory, evaluation and management of the range resource on the public lands used by domestic livestock or reindeer. The program involves authorizing and supervising grazing use and developing and maintaining supporting livestock management facilities.

One of the objectives of the program is to provide forage to help meet needs of the Nation and to help stabilize the economy of the livestock industry, individual users, and dependent communities.

Permits and leasing of the public lands that are issued in Alaska for reindeer and domestic livestock are subject to analysis under provisions

of the National Environmental Policy Act. Basically three alternatives exist: (1) grazing with only administrative permission; (2) grazing under intensive grazing systems of several types; and (3) no grazing.

These alternatives would be considered not only in formal environmental assessment review, but also through the BLM planning system which would weigh the conflicts of livestock grazing with other resource values. The planning process may indicate utilization of the grazing resource may involve environmental costs that exceed the benefits to be derived.

In the case of the Noatak National Conservation Area, reindeer grazing is projected as a possible resource use.

In the recent past several reindeer permits were issued in the area. However, the reindeer became mixed with wild caribou herds and were lost. Currently, no permits are issued in the area due to this problem.

Historically, from about 1910 to the late 1930's, literally thousands of reindeer were grazed in the Noatak, Kobuk and Selawik Valleys. Impacts must have been high against "predaceous" species such as wolves, bears, wolverines, foxes and caribou, as natives constantly battled these forces. There must also have been some severe impacts on vegetation, at least in the areas of heavy concentrations. With overgrazing, lichens were probably severely reduced at least on the coastal tundra by grazing and trampling in summer. The system was on recovery (30-50 years, says Palmer) from over grazing when permits and reindeer were again allowed in this same area in the 1950's. Actually, small remnants of the great herds of the 1930's had been located in several areas. No large scale potential for reindeer is foreseen due to the conflict with caribou and other wildlife such as the predaceous species, which must be controlled if reindeer herding is to occur.

4. Forest Management

The forestry program in BLM includes inventory, evaluation, and management of the forest resources on the National Resource Lands. Within environmental and cost constraints, the program objective is to provide timber for national and regional needs to the extent possible under sustained yield criteria. Criteria include harvest only from commercial forest lands; provision for exclusion from harvest for aesthetic, recreational, watershed, or other purpose, and prompt regeneration of harvested areas.

Forest management for production and harvest of timber materials is not an issue in this proposal area. Bureau policy indicates planned harvest will take place only on commercial forest lands. There are no lands within the proposal area meeting established criteria for this classification.

Limited noncommercial forest stands are found along some of the rivers within the proposed Noatak National Conservation Area. These stands can be considered as to their availability to provide forest products for subsistence purposes in response to small sale or free use application.

Under the BLM planning process this multiple use opportunity will be considered and parameters for sales established. Full environmental review and action in harmony with MFP guidelines are assumed.

5. Watershed Management

The general watershed program includes vegetative manipulation through mechanical, chemical, and biological methods, and water development and control structures. These are directed toward stabilization of soil resources, maintenance or restoration of soil productivity, protection and enhancement of water yield and quality, and reduction of flood and sediment damage.

In Alaska the program goal is watershed quality maintenance. This is implemented during planning of all action programs. One feature of BLM multiple use management is to foresee possible watershed problems and then design the action programs to avoid the potential problems. Watershed field work in Alaska is limited to rehabilitation of surface disturbed sites such as material sites, firelines, off-road vehicle trails, and mine tailings. Rehabilitation includes land shaping, construction of water diversion bars, seedbed preparation, fertilization, transplanting and seeding, mulching and watering.

6. Wildlife Habitat Management

The BLM wildlife program is primarily concerned with protection, enhancement or rehabilitation of fish and wildlife habitat on the public lands. Special attention is directed to the habitat of endangered species. The goals are to provide a variety of wildlife recreation and commercial use opportunities commensurate with public needs, resources potentials, and a quality environment. Program activity is closely coordinated with State wildlife agencies.

The program may involve vegetation manipulation by chemical, biological or mechanical means or by use of prescribed fire. Enhancement could also involve seeding or planting preferred food species.

No actions for the enhancement or rehabilitation of wildlife habitat would be undertaken without having been exposed and processed through the development of a MFP and through a critical environmental assessment.

7. Recreation Management

The basic philosophy of the Bureau's recreation program is to provide an adequate variety and

supply of outdoor recreation opportunities commensurate with public needs, resource potentials, and a quality environment on the national resource lands. The recreation management program includes: (1) the management of visitors; (2) the control of recreation activities; (3) the identification and protection of historic, archeological, and cultural values; (4) the identification and protection of natural values which may be valuable for their recreation use, and (5) the construction, operation, and maintenance of recreation facilities to achieve management objectives.

Specific recreation oriented designations on the national resource lands are: recreation lands, primitive areas, outstanding natural areas, natural landmarks, historic landmarks, historic district or sites, and recreation sites.

Within the proposal area there are quality recreation opportunities for hunting, fishing, winter sports, water sports, sightseeing, and primitive values. Numerous rivers meet the criteria for inclusion in the National Wild and Scenic River System. Currently, the Noatak and Squirrel Rivers are under study.

8. Fire Protection

The fire protection activity includes prevention, suppression, and suppression of damages caused by wildfire, and restoration of damages from suppression actions on lands administered by the Bureau of Land Management. The suppression activity and standards are directly extended over lands granted to the Natives under the provisions of the Alaska Native Claims Settlement Act, and over State-owned lands by contractual provisions. The suppression activities are also indirectly extended under cooperative agreements over lands administered by the Bureau of Indian Affairs, the Bureau of Sport Fisheries

and Wildlife, National Park Service, the National Forest Service, the Alaska Railroad, the Department of Defense, and borough and local governments.

The long-term objectives of the program include: (a) minimizing losses of public lands and their resources from wildfire damage and preserving their capabilities to contribute to the resource needs of the Nation; (b) protecting all rare or unique natural and historical resources and critical environmental values from wildfire and preserving them for the use and enjoyment of present and future generations; and (c) rehabilitating burned areas in accordance with land use and management plans.

Management framework plans will guide the implementation of fire control plans insuring that such plans are compatible with environmental needs and resource management objectives for the area.

Fire suppression techniques least damaging to the resource and the environment will be used. Rehabilitation of fire lines through seeding, water diversion and recovery will be used to lessen fire control damage to the environment.

9. Road and Trail Construction

The Road and Trail Construction and Maintenance program provides for the construction and maintenance of roads and trails for purposes of access to the public lands administered by the Bureau of Land Management.

The long-term objectives of this program are to build and maintain road and trail systems which provide access to public lands commensurate with the economic and social value of the resources served and the need for their development, use, and protection, to an extent and in a manner consistent with the protection, enhancement, and development of a quality environment.

F. History and Background

1. Relationship of the area to the Alaska Native Claims Settlement Act.

The Act provided a land and monetary settlement package for the Native people of Alaska and opened the way for resumption of the state selection program under the Alaska Statehood Act.

Among other provisions, the Act provided for the withdrawal of up to 80 million acres of unreserved lands for inclusion in the National Park, Forest, Wildlife Refuge, and Wild and Scenic River Systems. The Act also provided for the withdrawal of public lands to be classified or reclassified, and to open them to entry, location, and leasing in accordance with the classification.

In general, an initial three-way land distribution pattern resulted from the Act--those lands withdrawn for the Native Villages and the Regional Corporations' selections, those lands withdrawn for reservation in the Federal ownership, and those lands to be selected by the State.

More specifically, the existing and pending land status within the general area affected by this proposal, as shown on the attached Map 4, includes the following:

	<u>In approximate acres</u>
Other withdrawals, pre-ANCSA	459
17(d)(2) national interest study area	10,654,596
17(d)(1) classification & public interest area	22,912

Unreserved public domain	778,629
Indian reserve	145,628
Native village withdrawals	2,157,843
Village deficiency area	109,465
Regional deficiency area	403,672
State selection patented	1,333
Private lands patented	640
Other patent applications	1,165
Native allotment applications	99,032
All lands not selected by the Native Villages and Regional Corporations and the State within the general area will revert to the federal domain.	
Total Land Surface	14,194,811
Total Inland Navigation	56,363
Total Tidal Water	824,403

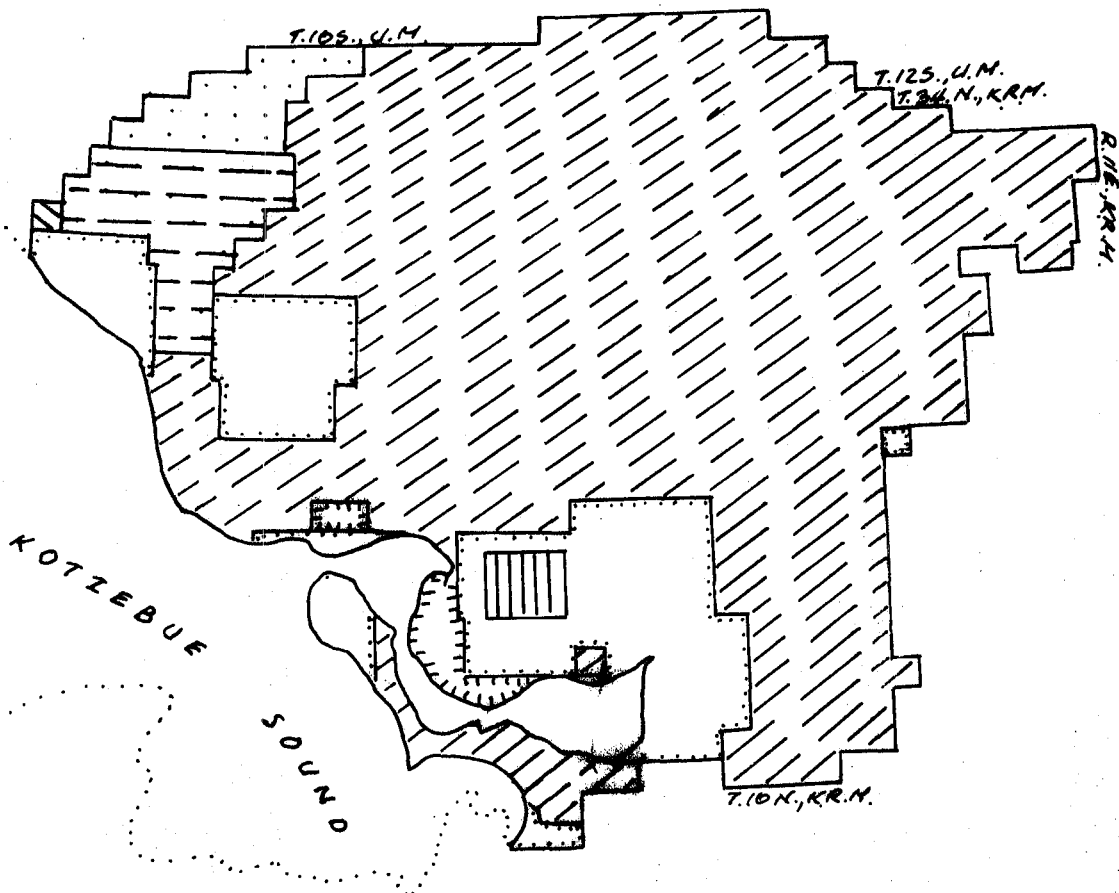
2. Relationship of the Area to Land Use and Environmental Analysis

Any new creation or addition to the National Parks, Forest, and Wildlife Refuge Systems can be made to fit a given area of the up to 80 million acres withdrawn for inclusion in the National Systems. However, what is needed first is an assessment of the resource management opportunities without regard to the man-made lines on a map.

Using data and knowledge collected over the years of land management in Alaska, the Bureau of Land Management has completed an ecologically oriented assessment of the state and has identified areas where either limited use or multiple use management should prevail in the best public interest.














The process reflects a broad ecologically assessed classification of land use forms grouped together by use associations. Tested against topographic features, primarily ridge lines of watersheds, and regionally oriented assessments (in terms of existing and proposed road net, village and urban population, socio-economic growth patterns, and resource base and development potentials), the initial lines, either readjusted or retained intact, formed the basis for definition of a manageable unit.

This process resulted in the definition of 28 manageable units. The resource values, with the indicated predominant use associations within each defined unit, provided an implication of the management philosophy to be applied for this unit.



MAP NO. 4
(Noatak National Conservation Area)
Scale: 1 inch approximately 40 miles

LEGEND

- | | |
|--|---|
|  D-1 Public Interest Areas |  Military Withdrawal |
|  D-2 National Interest Study Area |  State Selection Patented |
|  Village Withdrawal |  State Selection TA |
|  Village Deficiency Areas |  State Selection Application |
|  Regional Deficiency Areas | |
|  Indian Reserves | |
|  Unreserved Public Domain | |
|  Power Project Withdrawal | |
|  Utility Corridor | |

II. DESCRIPTION OF THE ENVIRONMENT

A. General

1. Geographic Location

The Noatak area contains approximately 14.2 million acres located in northwestern Alaska about 450 miles northwest of Fairbanks. The city of Kotzebue is the major settlement in the area. It contains an airport capable of handling jet aircraft, a regional high school, and a PHS hospital. Other communities include Kiana, Kivalina, Noatak, Noorvik, and Selawik.

The area is bounded on the north by the summit of the DeLong Mountains and on the west by the Chukchi Sea. The eastern boundary follows the watershed of the Noatak River in the Endicott and Schwatka Mountains to the vicinity of Shungnak. The southern boundary of the area encompasses the Kotzebue Peninsula and the lowlands of the Selawik River drainage.

Nearly all of the area lies north of the Arctic Circle.

2. Topography

The area ranges in elevation from sea level to nearly 6,000 feet in the Brooks Range in the extreme northeast corner. Portions of the DeLong and Schwatka Mountains are included in the area, while the Baird and Waring Mountains are totally included. The area can be characterized as primarily mountaneous in nature although tundra, marshes, and sparse timber may be found in the lower elevations of the valleys and along a portion of the coastal plain.

Two major rivers and most of their watersheds are located in the area. The Noatak River drains the north half of the area into Kotzebue Sound, and the Kobuk River drains the southern portion into Hotham Inlet. A number of smaller rivers,

including the Selawik, Kugarak, and Tagagawik, drain the southern area. Many small creeks or tributaries contribute to each of these river systems.

3. Climate

The climate can be described as arctic with 8 to 10 inches of precipitation per year at the lower elevations and up to 25 to 30 inches in the higher elevations of the Brooks Range. Snowfall ranges from 45 inches at lower elevations to over 104 inches in the higher elevations. Temperature extremes range from -60°F. on occasion to over 80°F. Coastal storms are frequent in almost every month. Ocean ice breaks up between early May and mid June, and freezes up in late October or early November. Fresh water ice usually persists slightly longer in spring and will freeze up one or two weeks earlier in the fall.

B. Aspects of the Environment That Could be Impacted

1. Nonliving (abiotic)

a. Air

As in most areas remote from concentrations of human development, the air is generally free of man-caused pollution except possibly for that which is common worldwide.

To date, there have been no concentrations of humans so large as to cause any air degradation problems. With increasing population and the potential for some development in the area, some air pollution problems may arise.

Some of the lower areas may be subject to occasional temperature inversions, wherein a mass of warm air overlays the colder air beneath it. In such situations existing

pollutants are not dispersed but rather hang in and over the land at a relatively low altitude. In warmer weather a classic smog situation can build up. On calm, cold days in winter it can lead to ice fog formation.

Moisture, expelled by combustion and even breathing, condenses and freezes into tiny crystals which remain in the air. The greater the population, the greater the amount of moisture; hence, the thicker the ice fog.

b. Land

Land forms in the area vary from the Noatak and Kobuk lowlands to the Brooks Range to the north. A few peaks rise to 8,000 feet, but, in general, the Brooks Range rises to 3,000 - 4,000 feet. Soils vary from deep silt deposits to bedrock of schist and granite.

The common bedrock through much of the area is limestone, granite, and metamorphic rocks. Igneous intrusions throughout are indicators of mineralization. Copper and gold in relatively minor amounts are the only minerals located to date. However, the south slope of the Brooks Range is considered to have significant potential for major mineralization. The bulk of the area has been subject to glaciation.

Soils tend to be thin except in the river and stream bottoms. There, frozen silts may be several hundred feet thick.

Although the silt supports a dense growth of native vegetative material, it is generally too low in nutrients, without artificial fertilizer, for longterm agriculture. On a short-term basis, however,

vegetables and flowers have been and are grown for some home use by a number of residents.

The entire area is underlain by continuous permafrost. When the silt and other unconsolidated material are subject to thaw, they cause serious erosional problems, particularly if they contain any significant quantity of ice. In some areas massive lenses or wedges of almost pure ice occur. The ice, like other minerals, is stable only under the conditions in which it is formed. Under natural conditions, its rate of change is slow and easily accommodated. But any surface disturbance will change the balance of heat flow, causing thaw and resulting in surface slumping and thermokarst formation where ice lenses or wedges are found.

c. Water

The main river of the area is the Noatak. From its source near Mount Igikpak the Noatak flows about 50 miles through a narrow glacial valley with steep walls 2,000 to 3,000 feet high. The flood plain of the river extends nearly to the bases of the valley walls and forms a broad, nearly level surface broken only by alluvial fans at the mouths of tributary valleys and by lakes formed from the thawing ice-rich permafrost.

Many valleys' tributary to the upper Noatak originate in deep cirque basins or in glacier-scoured passes at heights of 1,200 to 1,500 feet above the Noatak's flood plain.

Much of the upper river is in a single meandering channel with gravel point-bars and cut banks 8 to 10 feet high. The Noatak

is braided below the confluence of major tributaries where there are large volumes of coarse sediments and the water is shallow and swift flowing.

Below the Aniuk River confluence, the Noatak's valley floor abruptly widens into a broad plateau, flanked by bedrock ridges 20 to 40 miles apart.

The Noatak's broad central basin extends some 50 miles west to the Aglungak Hills near the Nimiuktuk River confluence. There the valley narrows again into a canyon less than three miles wide.

Below this, the valley gradually widens to more than 20 miles and consists of a vast depositional basin filled with lakes and ponds. A short distance downstream from Noatak village, situated 70 miles from the river mouth, the Noatak's current slackens and the river broadens.

Aklumayuak Creek, roughly paralleling the Noatak River north of Kanaktok Mountain in the Bairds and emptying into Lake Kangilipak, is apparently an early channel of the Noatak.

To the south, across the Baird Mountains from the Agashashok and Eli rivers, flows the Squirrel River, the largest tributary of the Kobuk. Streams of the area normally run clear except after rains. Then, because of low infiltration, flooding can be rapid and severe and water silty.

Alluvial deposits are the principal aquifers for ground water.

2. Living

a. Plants

The Noatak NCA lies within a transition zone between the taiga (boreal forest) biome and

the arctic tundra biome. Vegetal patterns reflect this as well as specific influences of aspect, soil, moisture, permafrost, climate, and fire occurrence. Vegetal associations represented are boreal forest, treeless bog, and marsh or muskeg, shrub thickets, alpine, and arctic tundra.

Forests within the area have two climax forms: closed spruce-hardwood and low-growing spruce forest. The former includes white spruce type, recent burn type, aspen type, paper birch type, and balsam poplar type. Low-growth spruce climax is typically found on northerly aspects or poorly drained lowlands and bog margins. Widely spaced black spruce individuals sparsely populate these areas.

Treeless bogs and muskeg are found within the taiga of the lower Noatak where conditions are too wet for tree growth. Such bogs primarily consist of grasses, sedges, and sphagnum moss. Heath shrubs, willows, and dwarf birch may be found on drier portions of the association, such as on peat ridges.

Shrub thicket association may be divided into floodplain and hardwood shrub types. Floodplain thicket is associated with exposed alluvial deposits along streams. Willow is the principal species with alder and berry understory. Type perimeters are delineated by susceptibility to periodic flooding which is necessary for type maintenance.

Hardwood shrub type contains birch, alder, and willow in dense thickets up to 10 feet in height. In less dense examples of the type, openings contain heath or lichens.

Tundra association occupies some 60 percent of the NCA. Of the three types within the association, moist tundra occupies extensive upland and foothill portions of the Noatak and Kobuk drainages. It is predominately cottongrass tussock with sedge and shrub components. Elsewhere low-growing shrubs such as dwarf willow, alpine bearberry, or dwarf birch are dominant.

Wet tundra or coastal marsh covers approximately 10 percent of the proposal area, primarily in the Noatak delta and in isolated upstream areas of very poor surface drainage. Typically these areas exhibit standing water during summer and permafrost at or near the surface.

Dry or alpine tundra occupies approximately 25 percent of the NCA and is the uppermost vegetal type prior to the demise of all vegetation due to elevation severity. Near the vegetation line the type is sparse, occurring only in those areas where most favorable conditions exist. Low mat species of dryas moss, lichens, grasses, and sedge predominate. Scattered shrubs of bearberry and willow are also found.

b. Animals

The Noatak area contains animal species that are typical of freshwater, marine, forest, alpine, and tundra environments. The area has clean air, clean water, limited human use, and animal populations that are influenced only slightly by man. Wetlands south of the Baird and DeLong Mountains support high value waterfowl, shore-bird and passerine habitat. Breeding ducks reach a density of about 45 per square mile. The lagoons between Kotzebue and Cape Seppings are important to both nesting and migrating

shore-birds and waterfowl. The endangered peregrine falcon nests on bluffs along the larger rivers. Other raptors such as gyrfalcon, routh-legged hawk, bald eagle, and golden eagle also nest in the area.

Freshwater and anadromous fishes include arctic char, arctic grayling, burbot, cisco, lake trout, northern pike, sheefish, sucker, whitefish, pink salmon, and chum salmon. The Kobuk River is one of four river systems in Alaska that support major sheefish populations. The Kobuk, Kelly, and Wulik Rivers are recognized by sport fishermen as the best rivers in Alaska for large sheefish, and arctic char. Burbot, whitefish, sheefish, pink salmon, and chum salmon are the major subsistence species. Chum salmon support a small commercial harvest.

Mammals include grizzly bear, wolf, arctic fox, red fox, lynx, wolverine, mink, otter, least weasel, ermine, marmot, arctic ground squirrel, muskrat, porcupine, moose, caribou, Dall sheep, muskox, arctic hare, snowshoe hare, red-backed vole, Alaska vole, brown lemming, and collared lemming. The area south of the mountains has high value caribou winter range that annually supports a large portion of the arctic caribou herd. Major caribou migration routes traverse the area and provide critical spring access to the calving grounds in Naval Petroleum Reserve No. 4. High value Dall sheep and grizzly bear habitat is found over much of the Baird and DeLong Mountains. Muskoxen were recently transplanted to lowland tundra meadows in the western portion of the area. Lynx, muskrat, otter, mink, red-backed vole, and snowshoe hare are confined to the southern portion. Caribou, fish, and marine mammals are the primary food species for subsistence hunters of the area. Commercial hunting of caribou is sporadic and limited to local markets. The area has high value for sport hunting or observation of grizzly bear, Dall sheep, caribou, and wolf.

3. Ecological Interrelationships

a. Food Chain

The food chain of the area from the producers to the consumers and reducers is a simplified shortened chain as a result of the cold temperatures, permafrost, and short growing season. The short growing season is also responsible for the slowed decay rate and resulting accumulation of plant material which insulates the ground. The number of species is small in comparison with more southerly latitudes and the total biomass production is relatively low. Variation in seasonal abundance and annual distribution of endemic species is especially pronounced. Variation in entire ecosystem processes may occur as the result of major changes in the populations of the low number of species.

b. Succession

Terrestrial plants and the animal life related to them are contained in basically broad types with various succession stages represented throughout. These four types could be referred to a boreal forest, alpine, wet, and moist tundra.

The boreal forest, which extends partially up the Noatak River covers most of the valleys and foothills of the Kobuk River area, and is actually a complex mosaic of ecosystems arising from fires. The sequence of plant succession following a fire is roughly as follows: (1) grass, sedge, forbs; (2) grass, sedge, shrub, willow, birch, or aspen; (3) willow, birch, or aspen, white spruce, or black spruce; (4) white spruce; (5) black spruce, sedge, shrub, lichen. Step 3 could go to black spruce or white spruce depending

on circumstances. Viereck in his studies has found that black spruce is probably the replacement of white spruce and forms the climax species along with lichens and sedges.

Early successional stages in the plant community are favorable for moose populations, while the climax vegetation of black spruce lichen is a favorite wintering type for caribou. Other shifts in animal populations will be influenced by the successional stages to perhaps a lesser degree than the caribou and moose, who are identified closely with climax and early successional stages respectively.

The moist tundra consists of widespread growth of cottongrass tussocks in association with mosses, lichens, willows, and tundra shrubs such as blueberry and cranberry. The lichen community in association with their community can be considered as an inductor of climax stage in succession.

The wet tundra, which occupies low areas along the coast and rivers and a large area near Selawik, is made up of sedges, grasses, and aquatic plants. The wet tundra is generally found at elevations of less than 500 feet and is interspersed with pot hole lakes in many areas.

The alpine tundra type which occupies portions of the higher elevations is basically a climax tundra type made up of lichens, sedges, and dwarf shrubs. Scant growths of very few of these species may occupy harsh sites while complex mixtures of sedges, grasses, lichens, and prostrate shrubs such as willow and blueberry occupy the better sites. Caribou and Dall sheep are the principal major animals utilizing this vegetation. The caribou is ecologically associated with this type and

utilizes the mountains for both food and insect relief. The distribution of sheep is probably related more to occurrence of favorable escape topography and suitable forage in proper proximity vegetation.

As in any ecosystem, there are complex interactions between many species, from micro-organisms in the soil, to small mammals and birds up to the moose, wolf, caribou, and grizzly bear, mink, otter, and man.

c. Resiliency

Resiliency of the ecosystem is varied. In general the alpine tundra, with its lichen associations or the black spruce-lichen sequence, both of which could be considered climax situations, are the least resilient. The early successional groups such as the sedges, grasses, willows, and forbs, respond much more quickly to destruction and disruption. In the case of fire, for instance, burning of a sedge, willow, or aspen complex will result in rapid regeneration, whereas old growth lichen stands may require up to several hundred years to recover to the same stage after burning.

Since the tundra ecosystem is basically simple, that is, having few component members, it is felt by some observers that the ecosystem is inherently unstable and any effect on one of the components will have major impacts on the function of the ecosystem.

The ability of any of the succession stages to respond to man's impact is now being intensively studied as a result of the oil development on the North Slope of Alaska. It is likely that all of the types present

in the Noatak area have low resiliency to any of man's activities that disturb the soil, such as strip mining, roadbuilding, clearing, etc. Certain less destructive activities, such as driving on the tundra types, may disrupt the climax stages while doing little long-term harm to the early successional stages. Examples of dredging throughout the Alaska Interior demonstrate the very slow recovery and low resiliency of these ecosystems to total disruption. Although these sites gradually revegetate themselves with willows and even spruce the creek, marsh or streamside ecosystem and its particular components, that were in many cases, present before dredging, will not be re-established.

Aquatic ecosystems of the Noatak area consist of the following broad types: riverine, fresh water marsh, salt water estuaries, bog lakes, and fresh water lakes other than shallow bog lakes. Except for reindeer grazing, the streams, lakes, fresh and saltwater, and marshes of the area have not been disturbed by man and are subject to the same principles of ecosystem dynamics that are evidenced by all ecosystems.

The particular functioning of aquatic ecosystem processes in an area such as the Noatak with its temperature and climate extremes has received little study. As in the terrestrial community, the general ecological principle that the farther north the less the number of components of the ecosystem, seems to apply.

It has been incorrectly assumed by many that the aquatic systems of Alaska are low producers and are even sterile. Closer observation reveals that for short periods of time most streams and water bodies are very productive in terms of biomass although the number of

species making up the biomass is less. This is not to imply that the total biomass production which includes all levels in the food chain, is comparable to the biomass produced by more southern rivers with longer growing seasons, and greater species and biomass potential.

Presently the streams and rivers of the area are the breeding and reproductive areas for not only anadromous species such as the salmon and sheefish, but also the grayling, burbot, and the whitefish. The streams provide the hatchery and rearing grounds for the juvenile fish of these species, which feed on the abundant micro- and macro-organisms as well as higher forms of life in the food chains, such as insects, crustaceans, etc. The larger rivers, such as the Kobuk and Noatak serve as refuge areas for species such as the grayling and sheefish during the winter, as well as habitat and migration paths for salmon and other anadromous species.

Specific information on the aquatic ecosystems is required to show the difference in succession, food chains, and resiliency of these northern systems in comparison with the more thoroughly studied ecosystems of the temperate zones. Great differences are expected between bodies of water of any particular area as well as overall differences as a result of the climate.

4. Human Use and Settlement

a. Resource Use

The principal use of resources in the area at present is the subsistence use of fish and game by the native population and the use of the mineral resources by the white man. Although not geologically explored in detail, it is known that the area is

mineralized and there are producing mines such as the Klery Creek placer gold operation.

The future use of resources in the area will probably center around the subsistence use of fish and game plus the development of hard mineral resources, coal, oil and gas. If the current energy crisis continues, the development of coal, oil and gas in the region could well be the primary resource use.

b. Human Settlement

There are archeological sites in the proposed NCA that reveal a long history of human settlement. The principal present-day settlements are the native villages of Noorvik, Kotzebue, Noatak, Kiana, and Selawik. The largest of these, Kotzebue, had a 1970 population of 1,696 and the proposed NCA population approximates 4,000.

The potential for the future growth of settlements in the area is closely associated with the development of minerals and energy related resources. If coal, oil and gas were discovered and developed, human settlement would likely occur at those locations.

With the exception of the native villages, particularly Kotzebue, settlements that are established to exploit nonrenewable natural resources will likely follow the typical pattern of such settlements: when the resource is no longer available in economic quantities the community is abandoned.

5. Aesthetics and Human Interest

a. Aesthetic (scenic)

Quality scenery, basically unaltered by the influence of man, is found throughout the NCA. While not the overpowering, dramatic

interaction between the five elements of landscape perception found in some portions of Alaska, the visual experience in Noatak is nevertheless pleasant. Coupled with raw primitive character of the harsh sub-arctic, aesthetic values provide an unforgettable experience to the few visitors attracted to the area.

An extensive, state-wide scenery evaluation by the Alaska Land Use Planning Commission staff identified one area of class A scenery--superior or unique--in the Baird Mountains. Class B--high quality--aesthetic opportunities are found along most of the Noatak and Kobuk Rivers and in Misheguk Mt. area. Several small class B enclaves are located elsewhere within the proposal area.

Class C areas on this evaluation constitute the majority of the area, as would be the case anywhere. This is not to say that islands of inherent aesthetic quality do not exist. Upon subsequent intensive analysis each quality area will be rated in more detail. It is highly probable that detailed analysis will disclose class A scenery in the canyon areas along the Noatak River.

b. Geological (unique)

Due to the unexplored nature of the area, little is known about unique geologic features which may exist.

The upper Noatak basin is a geologist's textbook of glacial action. Moraines, till, kane, kettles, and cirques are in continual evidence. In Noatak Canyon a highly deformed and colored metamorphic rock formation exposed in the walls was called a "most remarkable phenomenon" by an early explorer in 1885.

c. Historical and Archeological (unique)

While evidence has shown early occupancy of the area, ecological adaption to the open tundra dates from 8 to 10 thousand years ago. Several investigations have disclosed indications of multicultural occupations, although stratification within a site is rare. The NCA served as a mixing area between coastal Eskimo cultures and the Eskimo and Indian peoples of the interior and central Brooks Range. Available data supports the theory of increased mobility of both groups beginning approximately AD 1200. Although overlap in range exists, cultural mixing is not complete. The Noatak River Valley is the traditional route between Kotzebue Sound and the North Slope.

Historic sites, as opposed to archeological, are limited. Noatak mission and school is typical of nineteenth century missionary emphasis toward Alaska Natives and is noteworthy in that regard.

d. Cultural, Ethnic, and Religious (unique)

In aboriginal times, this area was isolated from the rest of the world. A harsh land, it was sparsely occupied by people of the coastal Eskimo culture, somewhat influenced by interior Indian contacts in more recent times.

Post AD 1850 change has been rapid and irreversible. Traditional culture and religion virtually collapsed following the establishment of Noatak village as a religious order mission school in 1908. Subsequent concentration of peoples at that location diluted the nomadic tradition although seasonal ranging for subsistence purposes continues to the present. This involves regular migrations to traditional locales for the taking of fish and game specific to each area.

Ever increasing reliance on store-bought goods has continued to dilute traditional cultures. Initially the store or the trader provided only staples: sugar, salt, etc. The snowmobile and the outboard now create a captivity heretofore unknown in the culture.

III. ANALYSIS OF PROPOSED ACTION

A. Unmitigated Impacts

1. Nonliving

a. Air

Most intensive land uses will lead to some degradation of the air.

Wherever people gather for intensive land use, they almost always have automobiles, snowmachines, or gasoline powered vehicles. Normally in remote areas in Alaska, power is derived from diesel engines driving generators. Such power units discharge significant amounts of pollutants into the air.

Minerals development would require larger power units, particularly in the case of major producers. Mine vehicles, drills, hoists, concentrators, and the like are heavy power consumers.

Heating units powered by fossil fuels, particularly petroleum products, have potential impact on air quality.

Generally speaking, therefore, intensive land use would result in a low to moderate degradation of the air quality.

The less intensive uses such as logging, most recreational activities, and some types of construction would result in low impact. Road and trail construction would probably have a low impact during the construction phase, but a moderate impact during the use period due to the increased numbers of vehicles and the dust raised in traversing such roads in the summer and fall.

b. Land

Use of land, except for a few of the most extensive uses, carries with it the implication of some change; hence some impact on the environment. In the case of the various surface uses (acquisitions, disposals, leases and permits, and rights-of-way), the impact, at least locally, would be medium to high.

Use of the land for minerals extraction and associated activities is similar to many lands uses, except that the lands affected are generally impacted in a more intense manner. While some surface-mined lands can be rehabilitated to some extent, complete restoration is not possible in all cases. Often there is insufficient or no topsoil to be saved for later spreading. Tailings and waste material are often sterile rock and surface mining commonly involves extraction of large quantities of mineralized rock in a limited area. During any mining operation, the bulk of the area is a take-out from the natural system, thus decreasing the availability of the land for other needs. Impact is therefore high.

An exception is in the case of oil and gas exploration and extraction. Only a small part of the surface of an oil and gas field must be utilized as opposed to an open pit operation. Surface disturbance by exploration equipment and disturbance and physical displacement of animal populations can be serious environmental problems. The most serious environmental danger from oil and gas operations are those threatened to off-site areas. Escaping brine or petroleum can cause greater and longer lasting degradation than many concurrent surface uses.

Grazing would have little effect on land in this area. There is no potential for cattle and sheep grazing but there is a potential for reindeer grazing. Although the possibility exists, the probability of land degradation appears small.

Forest management's greatest impact on the land comes from logging operations. Logging operations, roads, and camp sites would lead to a constant erosion threat. Camp sites are intended to include both logging camps and sawmill sites. Leaving slash behind may also affect the land by providing fuel for a hot fire. Resulting barren land is then subject to erosion. The danger of significant land degradation from this source is slight to moderate as commercial timber stands cover a very small part of the area.

Watershed management is not considered to have any noticeable effect on the land. The Bureau's policy is generally to maintain current water quality. While no rehabilitation is currently considered, any rehabilitation would result in an improvement. The efforts themselves, while otherwise degradational, would be conducted in an area already degraded.

Wildlife habitat management is considered to have very little if any impact on the environment. The Noatak area does not seem to lend itself to vegetative manipulation, except possibly through prescribed burns. The area does not lend itself to the widespread human development which would necessitate animal damage control.

The impact of recreation management varies considerably depending on the extent of anticipated use. Extensive uses such as

as photography, fishing, or cross-country skiing, commonly encompasses wide areas and involve little or no alternation of the environment. Intensive use often involves group activities and may require developments such as camp sites, downhill ski runs, or areas for vehicle rallies and races. Extensive use normally has little impact on the environment. Intensive use, however, would have low to medium impact. Because of the nature of the use, developments to facilitate intensive recreational pursuits are constructed so as to result in the minimum impact, and every effort is made to preserve the natural features which make the site or area attractive and desirable. In order to erect any facility, however, commitment for one use of the land is necessary.

Fire control activities in presuppression have little effect on the land. Suppression activities, on the other hand, involve substantial land impacts as vegetation in front of the fire must be removed down to mineral soil. If the fire can be caught while it is still very small--that is two or three acres--it can be contained manually. Once it gets a "foothold" it is often necessary to use mechanical equipment. This results not only in fire lines but also emergency trails to convey equipment to the fire zone. Since the lines and trails are constructed under emergency conditions, often by persons who have had no training in construction activities or surface protection concepts, they may lead to further degradation and to serious erosion, particularly where underlying permafrost occurs. Fire suppression activities, therefore, are considered to have a moderate effect on the land.

Road and trail construction, as in the case of other surface uses, does have a definite impact on the land. Vegetation must be cleared, drainages bridged, and special techniques used to prevent slides from damaging roads or trails. Once roads or trails have been constructed, continued use will compact the earth and prevent revegetation. In short, a road or trail represents a removal of land from the natural system. Not only would the surface be changed, but the soil characteristics would be changed, particularly after use. The soil would be compacted and the lack of an overlying vegetative mat would break the balance between the loss and gain of nutrients, along the strip. Contaminants from users, more serious in the case of vehicles, would alter the biochemical composition. Although roads and trails will normally revegetate themselves after use has ceased, the access way will remain visible for years, possibly for generations. The effect on the land of road and trail construction is considered to be moderate, with a high or great effect on the soil. Damage to underlying permafrost is a continued concern in this area. Such subsurface melt can result in severe surface movement.

c. Water

Most of man's actions have impacts on natural waters.

BLM multiple use programs which have potential for impacts include realty transactions, mineral developments, grazing of domestic animals, recreation developments, fire pre-suppression and suppression actions, and road and trail construction.

Realty transactions, including land disposals through exchange, public sale, and

state selections, have potential for changes in management and land use. Similar changes may result with leases, permits, and rights-of-way. With some land uses, soil erosion increases and the eroded material often moves to water bodies. Some of the streams already carry capacity loads of suspended particles during the thaw season.

Mineral developments, including exploration and production, can have impacts on waters. These actions are accompanied by increased soil erosion and sometimes the eroding material may reach formerly clear streams or lakes. Some production processes use toxic reagents which degrade water quality. Other production processes use large quantities of water and may even result in complete consumption of some streams. Disposal of waste from gravel and mineral extractions presents a severe erosion and water pollution particularly in areas of thaw-unstable permafrost.

A small amount of grazing may occur in this conservation area and there will be an associated impact on water. Even with good management grazing animals use vegetation and water and the increased soil erosion and animal wastes may degrade the water of particular sites.

This area will be subject to increasing recreational activities. These people involved activities are often difficult to manage. There will be some abuses of the land and these will cause impacts on the water. Increasing numbers of people will put greater demands on water use. This would include drinking, cooking, washing, sewerage and boating. Perhaps the most severe impact on water from recreation activities will be by off-road

vehicle (ORV) use. ORV use will occur on land and in streams and lakes. There will be pollution from fuel, exhaust, coolants, lubricants, equipment parts, etc. ORV use will initiate severe soil erosion, especially in thaw-unstable permafrost areas. This eroding material may move into formerly clear waters.

Fire presuppression and suppression actions affect water in several ways. If the actions keep natural fires out of large areas and the vegetation continues to succeed and provide cover, there is less than natural soil erosion in that area. Less erosion may result in less material being dumped into the waters of the area.

Fire retardants may pollute water during fire fighting activities. Construction of firelines exposes soils to severe erosion which results sometimes in large quantities of soil material moving to the waters of the area. In thaw-unstable permafrost areas the soil erosion may start immediately upon exposure and continue for years, forming deep and long gullies and sometimes diverting streams.

Road and trail construction has an impact on water in at least two ways. Sometimes the road bed and often bridges impinge on streams and lakes. During construction soil is exposed to erosion and the eroding material may move into formerly clear waters.

2. Living

a. Plants

The existing plant communities within the Noatak NCA are the result of natural factors. The impact of modern man has been

minimal to date. Man's only action affecting ecological relationships has been removal of vegetation in connection with the few village developments. When any step in vegetal succession is removed natural regeneration, if no further impact is applied, will take place beginning at a lower ecological stage.

Several programs have been identified as having potential for impact on terrestrial and aquatic plants. These include land use, mineral use, grazing, recreation management, fire control, and construction of roads and trails.

Lands actions resulting in transfer of land from Federal administration lessen any further voice in the selection of use alternatives for the tract. Secondary impact is from the use, which may involve vegetation removal or alteration.

Leases, permits, and rights-of-way for lands retained in Federal jurisdiction will have specific, identifiable impacts on vegetation in place. Secondary impacts may result if the permitted action facilitates availability of the area to people.

Mineral use has an impact on plants during the exploration, development, and extraction phases in that vegetation may be damaged or purposely removed during these actions. Bare soil may erode or mine and mill waste may leach into surface and ground waters impacting aquatic plants.

Grazing would utilize portions of the plant and could lead to other impacts such as trampling. Activities associated with management may require fencing, removal of vegetation or result in concentration of animals.

Within the recreation management program extensive use such as hunting or protective use such as wilderness or scenery enjoyment have minor impact. Intensive uses such as campgrounds, wilderness portals or trails, ORV parks and trails, or interpretive facilities will impact terrestrial plants and may impact aquatic plants through ground and surface water deterioration. Specific designation such as wild and scenic rivers attracts visitors, which has impact on the area. Any facility designed to fulfill an identified recreation management need will impact the environment by attracting usage greater than was experienced in the unmanaged condition.

Fire control methods may impact the plant communities due to degree of ground disturbance involved in some measures. Occurrence of fire is natural in the proposal area but it is not known as an area subject to high incidence of annual fires. The summer of 1972, however, resulted in numerous lightning caused fires, some of which burned large acreages.

Road and trail construction creates a primary disturbance impact. Secondary impacts may result due to access provided by such construction. People management impacts, as discussed under recreation, may result.

b. Aquatic and Terrestrial Animals

The productivity of the area for wildlife will be reduced in those instances where permanent structures and roads are constructed, reduced air quality affects food chain organisms, mineral soil is removed or unstable soils are disturbed. However, if the productivity of an ecosystem is defined

in terms of the biomass it produces, the overall impact of soil disturbances may increase productivity by alternating plant succession, provided the mineral soil has not been removed. The ability of animal populations to move freely will be inhibited by permanent structures and human activity, but the level of impact will depend on the animal species involved and the size and location of the structure.

Programs that have potential for impacts on aquatic and terrestrial animals include Lands, Minerals, Grazing, Forest Management, Wildlife Habitat Management, Recreation Management, Fire Control, and Road and Trail Construction.

Lands actions, including disposal through exchange, public sale, and state selection, have the potential for changes in land use patterns that may be totally disruptive to animal populations. Leases, permits and rights-of-way may also set in motion primary and secondary effects that may disrupt ecological systems. Changes of land tenure may prevent coordinated management of wildlife habitat.

Oil and gas exploration development and transportation or prospecting and production of mineral resources will have direct impacts on specific areas, indirect impact on some of the area, and secondary impacts for much of the area.

Habitat will be removed from productive status and potential conflicts with animal movements exist wherever permanent structures are constructed, mineral soil is removed, or minerals or mineral materials are mined. The potential for erosion, air pollution and water pollution will increase wherever road systems, airports,

mineral reduction plants, topping plants, refineries, and human settlements are established. Air pollution poses high impact potential. Some contaminants in low concentrations are not directly hazardous to humans, but will destroy major food chain components; lichens, a preferred winter food for caribou, can be totally destroyed by sulfur oxides at emission levels that are acceptable according to national standards.

Water pollution from toxic chemicals, crude oil, or silt will reduce the productivity of the affected area for wildlife and may cause direct mortality among aquatic animals.

Grazing by domestic livestock would have high impact on the terrestrial animals and moderate impact on aquatic animals of the area. Wild grazing and browsing animals such as moose, caribou, or bison would have to compete with domestic livestock for food and space. Livestock fences would affect wild animal movements and species such as moose and grizzly bears may cause regular damage to fences. The management of domestic grazing animals usually brings with it requests for predator control. Therefore, wolf and grizzly bear populations in the area may be highly impacted with additional grazing.

Recreation management in its most intense forms may reduce the productivity of the area for wildlife. Off-road vehicle use during snow-free periods has caused high impact on wildlife habitat, particularly where permafrost conditions are present. Recreational structures such as campgrounds, picnic areas, trails, and parking areas will attract people and increase potential for water pollution,

littering, disturbance of wildlife, and modification of habitat.

Fire suppression allows plant communities to proceed to a climax stage and allows organic litter to build up. Fire control methods will destroy wildlife habitat wherever heavy equipment is used, pollute lands and waters when chemical retardants are used, and increase erosion potentials. Fire control may have a positive or negative impact on wildlife habitat depending on management objectives for each area. If climax plant and animal communities are the management goal, then suppression of fires is desirable. However, if maximum diversity of wildlife species and optimum "edge effect" have priority, then the impacts of fire suppression are negative.

Road and trail construction takes wildlife habitat out of production. Human use of the road system increases potentials for water pollution and wildlife disturbance.

3. Ecological Interrelationships

Any action man takes in the Noatak area will have impacts on the ecosystem. The natural resiliency of the ecosystems offers some protection from permanent damage from many actions. The Bureau Planning System and environmental assessment procedures will screen the impacts and prescribe environmentally compatible resource actions. Not all ecosystem impacts can be screened or mitigated, especially as regards specific sites. Some impacts of man's activities while changing the ecosystem may have beneficial effects.

A nuclear power plant in certain areas could raise water temperatures and substantially raise biomass production potential as a result. Secondary, or cumulative effects of human use in the area may

also result in changes in the food chain or succession of the ecosystem that are unmitigable either through the planning system or stipulations.

Programs which have potential for impacts include Lands, Minerals, Grazing, Forest Management, Recreation Management, Fire Control, and Road and Trail Construction.

Lands actions, including disposal through exchange, public sale, and state selections, all have the potential of setting in motion changes in land use under other ownership that may be totally disruptive to the ecosystem. Leases, permits, and rights-of-way may also set in motion primary and secondary effects which may disrupt ecological interrelationships.

Disruptions of the land tenure pattern may prevent coordinated land management of the degree necessary to maintain ecosystem viability. For example, a zone of mineral development or settlements may prevent normal caribou migrations and then destroy the herd or cause a displacement or loss of numbers.

Prospecting and production of the mineral resources of the area will have direct impacts on specific areas, indirect impact of some of the area, and secondary impacts for much of the area. Prospecting and mining, besides destroying the soil and vegetative community at the site, may also result in off-site damage to ecosystems through erosion into streams or other forms of water pollution. Physical displacement of animal populations may take place because of man's presence. Temporary or permanent disruption of some populations may occur if mineral activity takes place on a critical area, e.g., Dall sheep lambing ground, or critical fish spawning areas. Mineral leasing, either for coal or oil and gas,

for which this area holds some potential, could have very large impacts. Strip mining for coal or intensive oil and gas exploration would involve direct destruction or disruption of vegetation and human displacement of animal populations. If large scale mineral development occurs and people are attracted to the area to establish communities, secondary impacts on the ecosystem are likely to occur. These include water pollution and disruption of wildlife use patterns.

Grazing, if allowed in the area, introduces competition between wild and domestic animals for space and food, puts grazing pressure on specific sites and vegetative species, and introduces the conflict between domestic animals and native predators. Implementation of grazing systems through fencing introduces impacts by interfering with movement of wildlife such as the moose, caribou, and sheep.

Recreation management in its most intense forms may destroy many of the plant and animal components at a given site. Widespread recreation uses such as hiking and off-road vehicle uses have the potential for disturbance of wildlife populations and possible selective destruction of flowers or unique animals.

Fire control in the area has basically two impacts. (1) Complete suppression of all fires allows the plant ecosystem to proceed to a mature climax composition. While the climax composition may be desirable for some species such as caribou, many plants and animals only occur in fire sequence communities. Diversity of the plant species through constant renewal due to fire disturbance is basic to the ecosystem. (2) Fire control methods may physically destroy habitat, displace animals, and silt streams. A positive impact of

fire control, however, is that it allows desired climax vegetative communities to become more prevalent--if this is a management objective.

Road and trail construction holds the possibility of destruction of specific sites and siltation of streams with a resultant impact on stream life. From a secondary standpoint, such construction allows almost universal access by large numbers of people to portions of the ecosystem not normally visited. This may result in destruction of vegetation or displacement of animal populations by human presence. Additional roads and access may also generate demand for settlement land in the area and then introduce potential conflicts with certain wildlife populations in the ecosystem.

4. Human Use

The principal unmitigated impacts which could occur in the Noatak proposed NCA would be unresolved conflicts among the various resource users. With a complete lack of regulatory procedures, the development of the mineral resources of the area could have tremendous adverse impact on the subsistence hunting and fishing patterns of the natives or upon the watershed of the Kotzebue Sound commercial fisheries. Also, unrestricted commercial fishing could seriously reduce the quantity or quality of that resource for sport or subsistence uses.

In general, the unmitigated impacts of human use are the unrestricted use of any or all resources without regard to the consequences of effect on the other resources or resource users.

5. Aesthetic and Human Interest

a. Aesthetic

Activities on the landscape, whether natural or man-made, which affect landform, color, line,

texture, and scale, will have an effect on aesthetics. The degree to which any action upsets the harmony of these components determines the extent of the impact.

Those components of the NCA proposal which may have an adverse impact on aesthetics of the Noatak area are Land Use, Minerals Use, Forest Management, Wildlife Habitat Management, Recreation Management, Fire Control, and Roads and Trails Construction. All these actions have the potential of significantly altering one or more components of the landscape.

The Watershed Management and Recreation Management programs have potential positive impacts through rehabilitation capabilities and programs to preserve significant aesthetic components of the environment.

b. Geological

The components of the NCA proposal most apt to have an adverse impact on the area's geological interest points are the Lands and Minerals programs. These actions could be disposals, leases, permits, rights-of-way, and the extractive development of leasable and locatable minerals and materials. The recreation management program may have some adverse impacts through the introduction of people concentrations.

c. Historical and Archeological

All programs may have an adverse impact on the area's historical resources. Factors of the historic resource are extremely fragile and susceptible to damage from any of man's activities. Bureau motion programs or visitor use by the public can be equally destructive.

d. Cultural, Ethnic, and Religious

Both positive and negative impacts from all NCA activities can be envisioned. Any program which will influence consumptive use of the area's natural resources, introduce new people into the native's cultural environment, or provide a money economy for the native people, will have a tendency to westernize the native culture and change the current life style.

B. Possible Mitigating Measures

In order to properly identify possible mitigating measures, we will assume that the following tools of management will become available to BLM.

1. Classification Authority--Ability to classify and reclassify lands when necessary.
2. Ability to exercise the BLM planning process before any major commitments are made.
3. Continuation of NEPA authority.
4. Exploration and development of locatable minerals will be allowed under a permit system only.
5. Arrest authority will be available for trespass control and enforcement of use stipulations.
6. Sufficient funding and manpower allocations will be made to support all the above activities in the Noatak National Conservation Area.

Assuming the above factors are operational, many of the unmitigated impacts identified as possibly resulting from multiple use management will be corrected in whole or in part.

Classification authority can be used to defer conflicting uses on an area until the potential conflicts can be processed through the planning system to resolve or minimize conflicts through stipulations. The authority may also be used to zone those areas where conflicts cannot be reconciled and management decisions must be made to limit use in an area.

The BLM planning system is designed to identify critical areas and surface possible conflicts of use. Many potential conflicts can be resolved through use of stipulations on any authorized use. Where conflicts cannot be resolved, the system provides a mechanism for selection of the alternative which will best meet national, regional, and local needs. Through the system, critical resources can be protected from any impacts by decision. Public involvement is a mandatory requirement of the BLM system, insuring the public an opportunity to assist and make their opinions known in the planning process.

The National Environmental Policy Act requires in-depth analysis of any proposed action. When the time and effort can be expended on a searching analysis, mitigation measures can often be identified and stipulated for any proposed use.

One of the greatest objections the public has to multiple use management is the fact that very little control can be exercised over the activities permitted under the 1872 Mining Act. BLM at present has only two options available; leaving areas open to mineral location, or closing the area completely to operation of the 1872 Act. The present situation allows little room for actual management. In many areas with important or critical resources, mining may not seriously impact on other resources provided that the mining is controlled to some extent and the mining accomplished according to a developed mining plan. This option would be available to management if the

legislative proposal is approved. If not, the manager must decide to leave the area open to mining, perhaps involving high potential environmental risks, or closing the area to mining, which forecloses any opportunity to extract what may be an important mineral resource.

Authority for arrest and enforcement is necessary to insure against unauthorized use and that authorized use is conducted in the manner stipulated. This action strengthens the ability of the BLM to insure proper compliance in a direct manner.

In order for the Bureau to function efficiently and to avoid any undue delays in decision-making, adequate funding and manpower is necessary. Without adequate funding and manpower, in-depth analysis of conflicts and potential solutions will be impossible. The tendency will be to short-circuit some of the detailed planning and analyses with consequently poorer controls on use. Opportunity for mistakes and omissions increases, with greater chance for environmental degradation which could have been avoided.

In addition, much less effort would be expended in surveillance of operations. The opportunity for modifying use when necessary and correcting errors in the field will essentially be foregone.

Given the authorities and sufficient support, the Bureau in Alaska could mount a sophisticated management program which would allow use and development while protecting or enhancing the quality of the environment.

Specific measures which could be incorporated into management plans and permitted use are indicated in the following sections.

1. Nonliving

a. Air

Federal law requires considerable lowering in pollutant discharge by passenger vehicles by 1975. A start will have been made on mitigating potential air pollution by passenger vehicles by the time the Bureau's management of the area would take effect.

A concentration of vehicles in a small area could cause a serious air pollution problem if an inversion situation existed. This could be mitigated by calling for a reduction in vehicle use until the situation changed. Heating and stationary power plants present a more difficult problem since they cannot be arbitrarily shut down. Operations can be improved by requiring that they be placed advantageously to maintain air quality. Regular maintenance to keep the facility operating properly can be required.

Road dust, if sufficiently serious as an air pollutant, could best be mitigated by road paving. Dust from roads and other sites can also be kept from being a seriously degrading element by watering and by chemical treatment.

In order to protect food chain organisms from loss or damage by air pollution, standards for pollutants such as sulphur dioxide will have to be more restrictive than existing state and Federal standards.

b. Land

The extractive minerals industry does not lend itself to the same depth and impact mitigation that other surface uses do. There are a number of techniques which can be required to lessen

the impact of both prospecting and mining operations. Use of equipment could be restricted to designated routes. Prospecting excavations could be required to be left in such condition that they would allow revegetation when abandoned. Tailings could be required to be deposited in a previously agreed upon manner.

Preplanning for roads and campsites to prevent erosion and siltation, and preplanned slash disposal to decrease fire hazards would reduce the impact of the activity.

Recreation management, particularly intensive use activities, would require careful preplanning. Such things as campsites and downhill ski areas can be made attractive without seriously degrading the land and resources in the neighboring areas through proper stipulations.

Mitigating the impact on land of fire control activities requires both a previously devised plan showing detailed consideration for the fragility of the lands and the capability for overseeing suppression activities. When fire control suppression activities are initiated, there is normally little time to determine optimum routes for equipment. Such routes must be planned in advance. Proper preplanning may hold adverse impacts to a minimum and rehabilitation efforts can further reduce the adverse impacts.

Road and trail construction impact is best mitigated by careful planning as to location, type, and need. Detailed supervision over the layout and construction will keep the impact "on site"; only the users will have off-site impacts. Paving or chemical treatment can be used to decrease erosion and to

preserve road surfaces and grades. Selective water runoff spillways and suitable culverts and bridges will also decrease erosion.

c. Water

Rehabilitation of disturbed surfaces will be used but will not be depended upon for general mitigation of impacts on water. The impacts usually will be avoided by requiring the development activity to follow operational guidelines and achieve certain performance.

Permit stipulations for rights-of-way will require operations to minimize impacts on water. Surface disturbance and soil erosion will have to be kept to a minimum by such methods as allowing off-road vehicle use only when it will not compress or tear the surface organic mat.

Mineral development permits will require settling of suspended particles before the used water is allowed to enter streams or lakes. Toxic substances must be "neutralized" or kept from entering the area's natural waters. Particular care will be required for location and management of waste disposal areas.

Location and type of recreation development and access will be determined through the BLM Planning System.

The only sure mitigating measure for fire presuppression and suppression is to completely discard the entire fire control program. There might be less impact on water if the land is burned over more often. Revegetation can be relied upon as a last resort for mitigating impacts from fire suppression activities.

The impact of road and trail construction on water can be mitigated largely through planning and design. Adequate allowance for surface and subsurface drainage will be required. The amount of soil exposed to erosion will be kept to a minimum and cleared areas will be revegetated as soon as practicable.

2. Living

a. Plants

General mitigation techniques include revegetation, soil cultivation and manipulation to encourage plant growth, and fertilization. In general reestablishment of native species is recommended. Introduction of exotic plants must be approached very carefully.

In some cases mitigation of an impact of one program can create another impact on plants. Grazing structures or fences can adversely impact plants in local areas even though their management justification is to distribute use. Recreation facilities designed to direct people use can attract and concentrate people to the detriment of local vegetation. Fertilizer leaching into streams from rehabilitation efforts can have a positive impact on some aquatic plants but a negative impact on other plants and some animals.

b. Animals

If the objective is to allow the ecosystem to operate without man-made impacts, then man must be excluded from the area. However, the BLM multiple use program accepts public use while attempting to minimize impacts.

Acquisition or exchange of land can be used to secure manageable wildlife habitat units.

Critical wildlife habitat such as nesting, lambing, denning, migration, or winter feeding areas will be identified under the planning system and human use of the area can be excluded completely or modified or prohibited by stipulation.

Stipulations for development projects can require containment structures and treatment facilities to accommodate undesirable waste materials. Rehabilitation of all use sites would be planned and stipulated.

Reindeer are probably the only type of domestic livestock that could survive in the area all year. However, due to regular use of the area by wild caribou, competition for domestic reindeer would not be desirable.

Fire control would be consistent with the requirements of existing wildlife populations of the area except as noted in the multiple use plan for the area. Fires that threaten human settlements would be suppressed. Prescribed burning or mechanical manipulation could be used to alter plant succession wherever it is desirable to increase the diversity of wildlife in the area.

Recreation and access development would be designed under the guidelines of the planning system. With excellent boat and barge access available between Kotzebue and the Kobuk and Noatak Rivers plus bush plane access via lakes, rivers, gravel bars, and airports, it is possible that road development would be limited in the area. ORV regulations plus time and space zoning and enforcement will reduce damage to wildlife habitat.

3. Ecological Interrelationships

An example of mitigation through planning would be the use of exchange or acquisition authority to block up lands into a managed viable ecosystem, and analytical environmental review of all actions proposed within the land's activities.

Mineral exploration and mining under a permit system could mitigate much of the damage to the ecosystem. Large scale mining for coal would be impossible to mitigate completely. Rehabilitation would likely replace a diverse plant community of climax stages with a monotypic exotic which is mitigation only in one sense.

Review of prospecting plans and comparison of these with ecosystem needs will allow joint resource plans to be formulated with stipulations to protect the environment. Once a mine area has been located, a proper mining and developmental plan could be prepared within planning objectives and environmental constraints. In both cases, prospecting and mining, rehabilitation of use sites would be planned and stipulated.

Adequate technical data is available to establish grazing and forest management practices within the constraints of the multiple use planning objectives for the area. It is entirely possible that grazing would not be allowed in the area as a result of economic, cost-benefit, and environmental analyses in the planning process. This is one form of mitigation.

Fire control activities in the area would be brought in line with the requirements of the ecosystem and the objectives for the ecosystem as spelled out in the multiple use plan for the area. Fire control methods and rehabilitation methods could be technically designed to be compatible with ecosystem needs.

Recreation and access development would also be screened by the planning system and environmental assessment to insure location in concert with ecosystem needs. Construction stipulations and contract inspection on the project site and during maintenance stages will insure compliance.

4. Human Use

The most logical mitigating measures for the Noatak proposed NCA would be the use of the BLM planning system and NEPA requirements plus other federal, state, and local laws. For example, the regulation of strip or placer mining would mitigate the adverse effect of this resource use on the fisheries' watershed. Likewise, limits placed on the means and methods of commercial fishing would insure the availability of this resource for subsistence purposes.

5. Aesthetics and Human Interest

a. Aesthetics

Proposed actions can be required to be hidden, buffered, colored, altered, or designed so as to harmonize with or enhance the natural scene.

The institution of visitor management programs is a possible mitigation opportunity of recreation management

b. Geological

All lands use and minerals use proposals should be carefully screened against the human interest values. Disposal areas can be changed or eliminated, rights-of-way hidden or moved, leases and permits issued

so as not to affect, or minimize the effect on, these natural features. The recreation management program offers the positive opportunity for mitigation through preservation actions and control of visitor use.

c. Historical and Archeological

Impact from all programs can be partially mitigated if knowledge of historical and archeological value is made available. An inventory of such values is critical if the planner is to avoid or minimize impact.

d. Cultural, Ethnic, and Religious

The Alaska native people, through their educational programs and their subsequent actions, will be the key factor in defining the impact of resource utilization of the ethnic and cultural environment. Section 14(h) of the Alaska Native Claims Settlement Act provides for native identification and selection of sites and locations historically valued in their heritage.

Prior to any land use action, the land manager will seek aid from native groups, the Bureau of Indian Affairs, state social agencies, and the academic community in identifying impacts. Mitigation measures can only follow identification.

C. Adverse Impacts that Cannot be Avoided

1. Nonliving

a. Air

Some degradation of the air is possible where there is human use. The area is gaining

favor for recreational activities, particularly those related to the mines. Mineral development would increase the potential for community development. Concentrated human activities cannot help but cause some air degradation.

b. Land

Use of lands for any sort of development will cause some surface disturbance. In each case there is a removal of the land from other uses, including wildlife and natural plants. In most cases, there is also some effect on adjoining lands due to pollution and noise. Vegetation disturbance is normally very local, but the effect on some animal species is usually much wider. Some animals require large areas for subsistence.

Continued use of the land will change the soil characteristics. Revegetated areas will remain different from adjacent areas of natural vegetation for long periods of time. Wherever topsoil was removed or bedrock exposed, the plant succession would be inhibited until sufficient soil had been formed. Waste rock and spoil piles, where planned, should present no great problem. Some types of surface mining, however, will leave large pits.

c. Water

Most of man's actions in the conservation area will have some impact on the waters. Even with careful management, multiple use of land will have unavoidable impacts on waters. There will be water loss through consumption by such activities as

mineral processing, recreation, and settlements. There will be some soil erosion from mining and waste disposal areas and from roads and recreational activities, particularly use of ORVs. The eroding material may move into the waters. Another unavoidable impact on water will occur with lack of BLM management controls or authority over disposed lands.

2. Living

a. Plants

Impacts on plants cannot be avoided without total exclusion of all activity from the area. Any action which requires working with the ground, on it or under it, necessitates removal or modification of vegetation.

Through management directions of the MFP, involving full public participation, acceptable limits of plant impact will be established. While impacts will still be allowed in some areas, they will be controlled and restoration practices provided.

b. Animals

Implementation of the multiple use concept causes certain unavoidable impacts to occur. Development projects or mitigation measures will cause individual animals to be displaced and killed. Disturbance of areas subject to permafrost conditions will cause thaw and erosion that will require a lengthy period before ecological relationships that existed prior to the action can be established. Some short-term soil

compaction and erosion will occur regardless of development methods. Accidental spills of chemicals, gasoline, and oil will occur. The removal of vegetation will cause changes in seasonal distribution of runoff and peak flows that may influence fish, furbearers, and waterfowl. Roads and other permanent structures will cause long-term unavoidable impact to wildlife by destruction of habitat and the disrupting effects of people.

3. Ecological Interrelationships

Any of man's actions that take place in the area are going to have impacts on the ecological relationships. Secondary impacts such as air pollution or conflict with wilderness-loving animals such as the wolves or grizzly bears may be caused by the influx of people to enjoy the recreation or develop a town at a mining site.

Human use and activity in the area is going to confront the ecosystem with permanent and temporary impacts that are adverse to the natural operation of the ecosystem. Most of the permanent impacts will occur on specific sites where the human influence is constantly felt due to occupancy or construction of facilities. In order to use the area man must build roads, structures, recreation facilities, services, and resource development facilities. All of these have impacts, that even though mitigated to some degree, cause disruptions to the natural ecosystem.

The only alternative, if the objective is to allow the ecosystem to operate without man-made impacts, is to exclude man completely.

4. Human Use

The primary unavoidable adverse impacts which would occur in the Noatak proposed NCA would be the conflicts between preservationists and consumptive resource users. The recreation value of true wilderness would be intolerant of the most mitigated form of mining or oil and gas development. The grazing of reindeer in the Noatak area would impact the grazing potential of caribou and no amount of mitigating measures could eliminate this conflict.

5. Aesthetic and Human Interest

Under multiple use management there are bound to be some actions in which all impacts cannot be avoided. In such cases the manager is obligated to show that every opportunity for mitigation has been examined and that all efforts to reduce the extent of the impact have been applied.

It is particularly important that special, unique, and superior values receive the fullest possible protection. When a specific action will affect a valuable entity which may be made portable, salvaged, or restored for protection in another location, this should be done. While this does not represent full mitigation, it represents a marked improvement over destruction.

D. Relationship Between Short-Term Use and Long-Term Productivity

1. Nonliving

a. Air

Long-term productivity may be considered the long-term high quality of the air. In

the short-term, it is improbable that the air quality will suffer so much as to be significantly measurable, except when a temperature inversion situation exists. Long-term high quality of air will suffer only if there are continued concentrations of people or their facilities.

b. Land

Commonly land use is a long-term use. Further, since land use is dynamic and constantly changing, its effect on long-term productivity is constantly changing. However, short-term uses such as a small mine, temporary communities, some forms of recreation, fire trails and lines, alter productivity during the period of use. Where a structure is removed, the area will eventually revegetate itself. If man should completely move away, any displaced species will become reestablished if the species in the area has not been eliminated.

Whatever length of time is included in the short-term use, the long-term productivity should be affected in the immediate area of the take-out. In areas such as this, where much of its value is for extensive use and for isolated intensive uses, loss of long-term renewable productivity would be minimal. The percentage of the natural long-term productivity lost would be relatively small.

c. Water

Lands, minerals, recreation, and road construction activities probably may have long-term impacts on water productivity. Massive changes in the vegetative communities,

weather, and soils of the watersheds are not anticipated. Potential exists for limited on-site consumption or transport of water flows for such uses as hydro-electric power, municipal power, or ~~sasam~~ production. If these uses cease, water production level should return to the original level.

2. Living

a. Plants

Destruction of other plant forms such as lichens will result in long-term productivity losses. Destruction could occur through over-use by reindeer or caribou, fire, oil and gas exploration, land clearing, and mining.

The relatively harsh environment of the NCA causes eventual vegetative recovery to be much slower than encountered in more temperate climates. It is therefore most important to recognize long-range impacts inherent in specific actions of any program.

b. Animals

The alpine tundra portion of the area is dominated by wildlife species that require climax vegetation as part of their niche. The tundra ecotype is not as resilient as the boreal forest, i.e., a disturbed tundra site takes far longer to return to a climax condition than a disturbed area in the boreal forest. The lands, minerals, grazing, recreation, and road construction programs have high potential for long-term effects from short-term actions in the Noatak area.

3. Ecological Interrelationships

The ecosystem is dynamic and will proceed on its natural long-term successional course unless one of man's actions disrupts it. The lands, minerals, recreation, and road construction programs involve actions with a high probability of long-term effects because of short-term actions. Many have a great likelihood of impacts that will push a segment of the ecosystem past its point of resiliency.

4. Human Use

Renewable resources such as fish, game, timber, etc., can be used extensively under a management program without adverse effects on long-term productivity. However, nonrenewable resources, such as minerals and fossil fuels, cannot be extensively used without adversely affecting their long-term productivity. Also, the short-term use of one resource, say coal by a strip-mining method, will adversely affect the long-term productivity of other adjacent resource values such as wilderness. These last two examples cannot be completely mitigated through provisions of the BLM planning system.

5. Aesthetic and Human Interest

Of particular importance in this category is the impact on native cultural, ethnic, and religious values. Any specific action under multiple use management may provide for greater interaction between modern society and native society. While access will provide the opportunity for cultural change, it would be subjective to assume that native culture will be destroyed thereby, or that the change will be adverse or beneficial.

Over the long term it can be assumed that demand for subsistence resource usage by natives will decline. Experience with aboriginal peoples elsewhere has shown that tribal elements recognize when ethnic values are being diluted and take steps to preserve representative samples of the cultural heritage.

E. Irreversible and Irretrievable Impacts and Commitment of Resources

1. Nonliving

a. Air

There is no true irreversible or irretrievable impact on the air quality, nor commitment of the air or air quality. Although some degradation of the air would probably result from the increasing human use of the Noatak area, it can always be raised again, if necessary, by closing the area to use and shutting down all facilities. Air quality is a function of man's use. In an area such as this, where human use is considered to be generally low, the degradation would be low and, therefore, returnable to the natural state.

b. Land

There are few impacts on land so serious as to be completely irreversible. This is particularly true where a comprehensive plan for the use and the protection of an area has been approved and all actions taken on the land are consistent with the plan. Land uses which cause destruction or loss of the soil may be considered irreversible. Uses that completely alter the site due to construction can also be considered irreversibly impacted.

Areas heavily disturbed as a result of mining operations may be presumed to have a continuing impact as revegetation will normally be a long-term affair. This recognizes that such mitigating factors as recovering with topsoil, fertilizing and reseedling may be helpful but not always possible or practical.

Any continuing loss of land would have an impact on the wildlife dependent on the area's renewable resources for sustenance, or for reproduction. The principal continuing impact, however, would be the continued use by people with the activity, noise, and odors they add to the area. While these are not irreversible and irretrievable impacts, they are normally long-lasting and in effect may be considered irreversible.

c. Water

Water consumption by recreational and mineral processing activities will be a permanent impact on the water resource of the conservation area. Disposal of the lands containing waters and activities affecting waters will be lasting impacts on the waters of the area.

2. Living

a. Plants

In theory there are no irreversible or irretrievable impacts with regard to plants in ecological succession if there is sufficient time allocated. Destroyed vegetation will regenerate if soil remains. If the soil is lost, plants are a primary element in the making of soil and will accomplish the task eventually.

In reality, any commitment of growing space to a use which precludes plant growth is irreversible unless the commitment is overturned. A road or a structure prohibits plant growth on that location but each may be removed. Irretrievable only applies when a time frame is stated; otherwise the theory above applies.

b. Animals

The loss of wildlife productivity while habitat is committed to other uses, even if temporary, must be considered irretrievable.

3. Ecological Interrelationships

Man's activities on a basically undisturbed ecosystem carry the probability of many changes that are basically irretrievable. The mineral or gravel source that is removed cannot, in most cases, be replaced; the exotic plant that is introduced in the process of mitigating construction damage may become an irreversible and irretrievable addition to the ecosystem. Modern road and airport construction also specifically impact sites to a major degree. The site in most cases will be irreversibly changed. Time, meaning hundreds or thousands of years, may allow much of man's activities to heal or appear to heal. The present ecosystem, however, will be irreversibly changed in the process. Rehabilitation of damaged sites for the most part will not be restoration from an ecosystem standpoint. It will not be possible in most cases to reestablish the original vegetative cover on severely disturbed sites.

Certain BLM programs, even with the most complete mitigating measures, will cause

irreversible and irretrievable impacts and commitment of resources. The programs permitted under the Minerals and Lands programs would have the greatest potential for impact. If mineral resources of the Noatak proposed NCA were exploited, an irreversible impact on the wilderness values present and possible upon the wildlife resource, would result. Minerals extracted would be irretrievably lost to human use in this area once they were transported to market out of the region.

Human settlements, while not premeditated action as it relates to environmental impact or commitment of resources, can be responsible for severe and irreversible impact. Land devoted to human settlement not only prevents most other resource uses in that area but also results in a wide variety of impacts that cross the spectrum of the environment.

4. Aesthetics and Human Interest

The Alaska Native Claims Settlement Act indirectly provides for changes in cultural, ethnic, and religious standards of native groups. Cultural, economic, and land/resource requirements are inextricably intertwined. Change in one sector causes adjustments in the others.

IV. RECOMMENDATIONS FOR THE MITIGATION OF ENVIRONMENTAL IMPACTS

When considering the broad spectrum of activities which could be accommodated under a system of multiple use management, a listing of specific mitigation measures without close scrutiny of a single proposed action and its possible effects on the environment is not practicable.

Under the umbrella of NEPA, proposed actions undergo environmental analysis, with full exploration of alternatives and possible mitigating measures. The mitigating measures discussed here involve primarily the authority for the BLM to exercise a greater range of management options with better controls, monitoring and follow-up than presently available under the myriad of laws affecting public lands and resources.

The following measures are recommended as positive actions which will strengthen the Bureau's ability to mitigate many of the actions that are possible under a philosophy of multiple use management and to more adequately allocate resource utilization according to expressed needs.

Many of the proposed measures recommended are included within the proposed Organic Act for BLM. They are repeated here in the event that the proposed Organic Act does not become law prior to the establishment of the Noatak National Conservation Area.

1. A well defined multiple use management policy for BLM.
2. Establishment of a defined boundary for the Noatak National Conservation Area.
3. Exchange, acquisition and disposal authority.
4. Classification authority.
5. Establishment of a permit system for locatable minerals.
6. Arrest authority for violations of law or regulations.

7. Defined penalties for violation of law or regulations.
8. Authorization for funding and appropriations sufficient to manage the lands and resources properly.

No changes are anticipated or proposed in the mineral leasing laws. NEPA requirements are mandatory and will be met on all proposed actions.

The Bureau's planning system is an excellent tool to surface conflicting land and resource uses and in resolving those conflicts with minimal impacts. When conflicting uses cannot be resolved, decisions will be made and lands classified to best meet national, regional and local needs. The Bureau's mandatory requirements for public input and participation in the planning process is highly desirable and will be continued. Public exposure of management policies, alternative options available and decision making is essential to inform the public of the needs for land and resource utilization and the environmental costs, if any, associated with the satisfaction of those needs.

The proposed legislation establishing the Noatak National Conservation Area will incorporate those tools which, together with those presently available, will allow the Bureau to more fully exercise its mandate for multiple use management in the area.

V. ALTERNATIVES TO THE PROPOSED ACTION

A. No Action (The Present Multiple Use System)

This alternative is the same as the present legislative and budgetary authority for the Bureau of Land Management to administer the Federal lands in the general area described in the proposal for multiple use purposes, subject to the withdrawals made under the Alaska Native Claims Settlement Act. The Federal lands referred to above exclude all Federal land withdrawals where the Bureau has no surface management or interim management responsibilities.

The various forms of withdrawals (village selection, village and regional corporation deficiency, national interest study area, classification and public interest areas, etc.) under the Alaska Native Claims Settlement Act, with certain exceptions, segregate the withdrawn areas from all forms of appropriation under the public land laws, including selections by the State of Alaska, from location and entry under the mining laws, and from mineral leasing. The exceptions, however, allow the Secretary of the Interior to make contracts and to grant nonmineral leases, permits, rights-of-way, or easements. In addition, those lands withdrawn for the classification and protection of public interest under the Alaska Native Claims Settlement Act are subject to locations for metalliferous minerals.

Under a management program of this type, the probable environmental impact from the components of the actions on the given area (both of which are described in the proposed action) will be influenced by the segregative limitations and the purposes of the withdrawals made under the Alaska Native Claims Settlement Act. While the lands remain withdrawn for the purposes of the various Native Village and Regional Corporation selection entitlements and for study and inclusion into the National Park, National Forest, National Wildlife Refuge, and Wild and Scenic Rivers Systems, there will be little or no new Bureau-directed program relative to mineral development, grazing of domestic animals, utilization of forest products, watershed developments, recreation developments, and road and trail construction work.

Fire presuppression and suppression actions, cadastral survey and realty work leading to transfer of lands to the Native Villages and Regional Corporations and the State, however, can be generally expected to be intensified from the present level of operations in these areas.

For those lands withdrawn to be classified for the protection of public interests, there could be an intensification of certain components of the program actions under the Bureau's multiple use management program. This will be particularly true in the general area described for the proposal where Bureau activities include developing management framework plans, providing realty related services for the local populace, and protecting the areas from wildfires. The proportionate small amount of [d-1] lands in comparison to the [d-2] lands withdrawn however, limits the operation of Bureau programs during the interim.

The unmitigated impacts from the components of the Bureau's programs described above will likely be the same as those described for the proposed action. Although the Bureau's multiple use program is carried on under a myriad of laws and regulations, these program actions will still be guided by framework plans developed through its planning system, by the requirements of the National Environmental Policy Act. There will be no control over the locatable mineral explorations.

The mitigating factors which could be imposed under the Bureau's present regulatory, budgetary, and management controls in Alaska, however, will differ from those discussed under the proposed action. Without the additional management tools, such as direct arrest authority and regulation violation penalties, exchange authority, acquisition authority, disposal authority, congressionally defined management boundary, classification authority, permit system for locatable minerals, and authorization for appropriation and funding for a specific management

area, the mitigation measures which could be defined to lessen or control the undesirable impacts, like those described in the proposed action, will be weakened.

This condition is particularly troublesome as it applies to those nondiscretionary types of actions (operations under the general mining laws; and were it not for the Alaska Native Claims Settlement Act, with its temporary segregative provisions, the various types of entry and location laws and the State of Alaska's right to appropriate rights-of-way). Other troublesome areas deal with the vastness and remoteness of the area in relation to administrative and policing type of management actions where manpower is critical to prevent and control trespass and violations of stipulated conditions.

The impacts which could not be mitigated in part or entirety can be grouped into those reflected by available discretionary control and those which occur under nondiscretionary actions. In general those adverse impacts from the components of the program described in the proposed action will hold true for this alternative. The difference will be reflected in the degree or intensity of adversity. The temporary segregative effects of the Alaska Native Claims Settlement withdrawals, in many ways, temper and help to keep some of the adversities described in the proposed action from occurring.

Under this alternative, the short-term use of the environment is also constrained by the Alaska Native Claims Settlement Act to those uses authorized under the Act (see earlier discussions). The Bureau's management program will be an interim one for most of the areas until determinations and decisions are made for disposition under the Act. The maximum period for all determinations to be completed which are not encumbered by litigations is seven years from December 1971.

Without establishing land tenure on those lands to be reserved in the Federal ownership, management direction by the Bureau in Alaska, except for those directed by interim needs such as fire protection, cadastral survey, transportation and communication systems, and the realty work related with the Native Claims Settlement Act and the Statehood Act, will be set back or deferred.

Such being the situation, there will be little irreversible and irretrievable impacts and commitments from the standpoint of Bureau programs under this alternative. What could be critical, however, is the pattern of land ownership and the level of use or non-use which could occur after tenure has been established for this region.

The general holding action dictated by this alternative should not be controversial.

B. Limited Use Management

This alternative, treated in three parts, assumes that the management and administration actions on the national interest study area located in the area of the proposed action as shown on the attached Map 4, will generally be consistent with the fundamental purposes for which the National Park, National Wildlife Refuge, and the Wild and Scenic Rivers Systems are established. All three systems, by charter through Congressional authorizations, however, could be managed to accommodate other uses such as some of those described under the proposed action. Moreover, each alternative part could include proposals for adding the adjacent land areas withdrawn for classification and public interest protection (d lands) into its system.

The following descriptions on the alternative uses under the three systems were composed with excerpts taken and rearranged from printed material prepared by each agency for the Joint Federal-State Land Use Planning Commission in Alaska.

No assessment of the environmental impact is made. Such an assessment would require an in-depth knowledge of the management capabilities and practices of each agency involved. This is obviously beyond the scope of BLM capabilities or even jurisdiction. However, in a given program such as mineral development, grazing, or forest management, the environmental impact to be realized under any other agency would be essentially the same as the proposed action.

1. National Park System

Congress has assigned the National Park Service of the Department of the Interior a dual mission: to manage the superlative natural, historical, recreational, and cultural areas which comprise the National Park System for the continuing benefit and enjoyment of all the people; and, to provide national leadership in cooperative programs with other Federal agencies, State and local governments, private citizens and organizations in the preservation of our Nation's natural and cultural heritage.

At present time Alaska is represented in the National Park System by Mount McKinley National Park, Glacier Bay and Katmai National Monuments, and Sitka National Historical Park.

In addition to its responsibilities for management of the National Park System, the National Park Service administers a grants-in-aid program for the preservation of historic properties, conducts archeological and historical research programs, and administers a national program for the identification and registration of natural and historic landmarks. The National Landmark program gives Federal recognition of the importance of nationally significant natural and historic areas under a variety of ownerships. Thirty-two areas have already been identified in Alaska.

Management Policies. Prior to 1964 the National Park Service undertook to assimilate the diverse types of areas which had been added to the National Park System into one largely undifferentiated system. In July 1964 the National Park System was subdivided into three categories: natural areas, historical (including archeological) areas, and recreational areas. Each of these categories has a separate management concept and a separate set of management principles coordinated to form one organic management plan for the entire National Park System. At present the system consists of 75 natural areas, 178 historical areas, 42 recreational areas, 2 cultural areas, and the National Capital Parks.

In 1968 the National Park Service issued management policies for each of the three categories of areas. These statements are too voluminous to describe here but certain policies which are of greatest interest to the people of Alaska will be mentioned. It must be recognized that Congress may, when authorizing an area for addition to the National Park System, provide for uses which are not consistent with normal National Park System policy.

Natural areas, which include the great national parks like Mount McKinley, and the scientific national monuments such as Katmai and Glacier Bay, are managed so as to safeguard the forests, wildlife, and natural features against impairment or destruction. Commercial harvesting of timber is not permitted except where cutting of timber is required in order to control the attacks of insects or disease. Domestic livestock grazing is permitted only where it is sanctioned by law. Except where authorized by law or when carried on pursuant to valid existing rights or as part of an interpretive program, mineral prospecting, mining and the extraction of minerals or the removal of soil, sand, gravel and rock will not be permitted.

Public hunting shall not be permitted. Sport fishing is permitted only when specifically authorized by law.

Historical areas include all national historic sites, monuments and parks, such as Sitka National Historical Park, established for prehistoric as well as historic values. Management is directed toward maintaining and where necessary, restoring the historic integrity of structures, sites, and objects significant to the commemoration or illustration of the historical story. Natural resources (forests, fields, fauna, etc.) will be maintained to resemble, as nearly as possible, the natural resource scene that occurred at the time or period of history being commemorated.

Recreation areas include the national recreation areas, national seashores and lakeshores, national parkways, national scenic riverways, national rivers, and national scenic trails. Outdoor recreation shall be recognized as dominant, or primary, resource management objective. Natural resources within a recreation area may be utilized and managed for additional purposes where such additional uses are compatible with fulfilling the recreation mission of the area. Harvesting of timber, in accordance with sound forest management principles, is permitted in recreation areas. Mineral prospecting and the removal of nonleasable minerals may be permitted under applicable regulations where such use would not significantly impair values of the area. Leasable minerals may also be removed in accordance with the Mineral Leasing Act. Public hunting, fishing, and possession of fish and resident wildlife shall be in accordance with applicable State laws and regulations, but the National Park Service may designate zones where, and establish periods when, no hunting or fishing shall be permitted for reason of public safety, administration, fish and wildlife management, or other public use and enjoyment of the area.

2. National Wildlife Refuge System

The possible uses of land on a National Wildlife Refuge discussed here are representative of actual uses made on existing refuges and therefore may be recommended in any Bureau of Sport Fisheries and Wildlife proposal. It must also be recognized that Congress, in passing legislation for this system, may provide provisions that alter the normal operation of an area. Such legislative provisions may be either more restrictive or more lenient than present regulations governing such areas. Again, this resume of National Wildlife Refuge activities is based on existing refuges, usually established by Executive Order or purchase and describes the traditional and present operating rules, regulations, and practices of the Bureau of Sport Fisheries and Wildlife in managing its lands.

The Bureau's Division of Wildlife Refuges administers those lands which are designated as Wildlife Refuges, Game Ranges, and Waterfowl Production Areas. Basically all refuge areas are maintained for the fundamental purpose of wildlife conservation and rehabilitation. Within this purpose the special mission of the Refuge System is to provide, manage, and safeguard a National network of lands and water sufficient in size, diversity, and location to meet people's needs for area where the entire spectrum of human benefits associated with migratory birds, other wild creatures, and wildlands are enhanced and made available.

In Fiscal Year 1971 over \$4 million in revenue was generated from resources removed from National Wildlife Refuges. Those resources included: oil and gas, forest products, grazing, trapping, haying, concessions, surplus animals (buffalo, elk and longhorned cattle), sand and gravel, and others. Hunting and fishing are permitted on over 120 refuges. Special management considerations and regulations may preclude certain

of these activities on many refuges in the system, where endangered species may be involved, or where small size or other factors limit opportunities for hunting and fishing.

In Alaska, the permissible activities on refuge proposals will be determined on an area-by-area basis. A recommendation to permit hunting, fishing, trapping, berry picking, and other subsistence activities will be made in all Bureau proposals for new refuges. The United States laws pertaining to hunting, fishing, and related activities on those lands, as well as criminal and civil law enforcement matters, will be enforced.

Basically all acts are prohibited on a refuge unless permitted by the Secretary of the Interior. The Secretary is authorized under such regulations as he may prescribe to (1) "permit the use of any area within the system for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access whenever he determines that such uses are compatible with the major purposes for which such areas were established... and, (2) permit the use of, or grant easements in, over, across, upon, through, or under any areas within the system for purposes such as but not necessarily limited to, powerlines, telephone lines, canals, ditches, pipelines, and roads--whenever he determines that such uses are compatible with the purposes for which these areas are established."

Some of the limitations are described below:

Wilderness: Unless altered by Congress the Wilderness Act of 1964 does not apply to any of the four systems proposals. However, Congress may alter the Wilderness Act or make a special management commitment on any system proposal.

Off-Road Vehicles. All refuges are closed to use of off-road vehicles unless this use is specially authorized. All-Terrain Vehicles

could be permitted after study to determine time and areas of use which will be compatible with refuge objectives. Snow machine use of refuge proposal areas will be recommended. Such use may be limited to periods when there is snow on the ground deep enough to prevent damage to the vegetation.

Hunting, Fishing, and Trapping: All proposals will recommend these activities be permitted in accordance with existing State and Federal rules and regulations.

Temporary Cabins and Camps: Temporary trapper cabins and fish camps can be build under permit issued by the refuge manager.

Winter Trails: Existing winter trails may be used. New trails will be possible under permit authority of the Secretary.

Mineral Leasing: Mineral leasing including oil and gas as provided for in 43 CFR will be handled on an area-by-area basis. Bureau recommendation generally will be to permit leasing unless such activities would be inconsistent with refuge purposes. All leasing activities and recovery operations will be in conformance with 43 CFR and any stipulations or other special regulations the Secretary may impose.

Mining and Metalliferous Location: The Bureau recognizes the vital minerals cannot be "locked up forever" and the Secretary may permit controlled mining when such mining is in the national interest, subject to existing laws or as may be provided by Congress in the establishment of new refuges.

Timber Sales and House Logs: On timbered areas commercial harvest and cutting of house logs for private use is possible by permit.

Hiking, Camping, Photography: These activities as they relate to a wildlife-wildland experience will be permitted.

Scientific Investigations: Scientific research will be permitted subject to refuge objectives and regulations.

Historical and Archeological Sites: Sites that are within any refuge area will be protected by the Antiquities Act.

Other Activities: Activities not listed above may be permitted on an area-by-area basis if such activities are compatible with refuge objectives.

3. Wild and Scenic Rivers System

The Wild and Scenic Rivers Act (P.O. 90-542), approved on October 2, 1968, established the National Wild and Scenic Rivers System and prescribed methods and standards by which additional rivers may be added to the system.

There are two methods for adding river areas to the national system: (a) Federal legislation, or (b) State legislation and approval by the Secretary of the Interior. No rivers in Alaska were identified in the Act.

All rivers in the national system must be substantially free-flowing and have high quality water. The river and adjacent lands must possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. In addition, the river area should be long enough to provide a meaningful experience and have sufficient volume of water to permit full enjoyment of water-related outdoor recreation activities normally associated with comparable rivers.

Rivers are diverse and most have been altered in varying degree by man's use of them and their

watersheds. This diversity is especially true in Alaska where there are differing types of glacial and non-glacial streams. Many Alaska free-flowing river areas or portions thereof could fit into one of three classifications provided in the Wild and Scenic Rivers Act:

Wild river areas--Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic river areas--Those rivers or sections of rivers that are free of impoundments, with shorelines and watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas--Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

It is probable that all Alaskan rivers meet the minimum criteria established by the Congress for inclusion in the National Wild and Scenic Rivers System. Therefore, the first task confronting the Bureau of Outdoor Recreation was to determine the types of Alaskan rivers which should be considered for inclusion in the system and to identify those having the highest potential for inclusion. Federal and State agencies, conservation groups, and others knowledgeable about Alaska recommended that some 166 Alaskan rivers totaling more than 15,000 miles be considered.

Through screening and reconnaissance, 40 rivers have been selected without regard to existing or potential ownership by Federal, State, or Native groups.

As rivers may be included in the National Wild and Scenic Rivers System under Federal or State supervision, priority was given for completing studies of Alaskan river areas where substantial portions of the lands in the river areas were designated by the Secretary of the Interior in September 1972 under the provisions of section 17(d)(2), ANCSA. Twenty-nine of the forty previously identified by the Bureau of Outdoor Recreation are in this category.

The remaining river areas are to be studied upon request of the State or Native groups which now, or may in the future, administer the adjacent land area.

Boundaries: One of the objectives of the study is to determine the approximate boundaries should the river be included in the National Wild and Scenic Rivers System. The criterion for boundaries is that land which directly contributes to or affects the particular values of the river receive proper protection and management. Factors such as topography, vegetation, existing and potential land uses and access would be the basis for making this determination. In Alaska a two-mile corridor--one mile on either side of the river--is being studied.

Management Objectives: Congress established procedures that protect the values for which a river area is added to the national systems. However, depending on the classification selected for the river area, the Wild and Scenic Rivers Act does not necessarily prohibit the construction of roads or bridges, timber harvesting and livestock grazing, or other uses that do not substantially interfere with full public use and enjoyment.

Wild river areas, being the most primitive, inaccessible, and unchanged, will be managed to preserve and enhance the primitive qualities.

Scenic river areas which are accessible in places by road will be managed to preserve and enhance a natural, though sometimes modified, environment and provide a modest range of facilities for recreation.

Recreational river areas normally will provide the visitor with a wide range of readily accessible recreational opportunities, including more elaborate and more numerous facilities in an environment which may reflect substantial evidence of man's activity, yet remain aesthetically pleasing.

Administration: Overall administration of each river included in the National Wild and Scenic Rivers System would be made on a case-by-case basis according to whether the river were included by Act of the State Legislature and approval of the Secretary of the Interior or by Act of the Congress.

The responsibility for federally administered rivers will be assigned by the Congress taking into account the recommendations contained in the report filed by the Secretary of the Interior and the views of various Federal departments, the Governor of Alaska and the Joint Federal-State Land Use Planning Commission.

For the 29 Alaska rivers now under study it is expected that primary responsibility would be assigned to the agency managing the adjacent area. Probable Federal land managers include the Bureau of Land Management, Bureau of Sport Fisheries and Wildlife, Forest Service and National Park Service. The Bureau of Outdoor Recreation is not a land managing agency.

It is possible for a river to be administered by more than one land managing agency. Several Federal agencies or a combination of Federal, State, local, or Native agencies could be involved according to the specific river area being considered.

Hunting and Fishing: Hunting, fishing, and trapping on lands and waters included in the national system would continue to be governed by appropriate State and Federal laws.

Nothing in the Wild and Scenic Rivers Act affects the jurisdiction or responsibilities of the States with respect to fish and wildlife, unless, in the case of hunting, the river environment is also within a national park or national monument. The Secretary of the Interior or, where national forest lands are involved, the Secretary of Agriculture, may designate other zones where, and establish periods when, hunting is not permitted because of public safety, administration or public use and enjoyment. Any such action, however, is undertaken only after consultation with the wildlife agency of the State.

Mining: Nothing in the Wild and Scenic Rivers Act affects the applicability of the United States mining and mineral leasing laws within components of the system except that: (1) The issuance of a patent to any mining claim affecting lands within the system shall confer a title only to the mineral deposits and such rights only to the use of the surface and the surface resources as are reasonably required to carrying on prospecting or mining operations; and (2) regulations will, among other things, provide safeguards against pollution of the river involved and unnecessary impairment of the scenery within the component.

Minerals in lands which constitute the bed or bank or are situated within any river designated a wild river will be withdrawn, subject to valid existing rights, from all forms of appropriation under the mining laws and from operation of the mineral leasing laws. This withdrawal is not applicable to a scenic river area or a recreational river area.

C. Multiple Use--National Forest System

This alternative applies to the national interest study area located in the area of the proposed action, as shown on the attached Map 4. The alternative could include the proposal for adding the adjacent land areas withdrawn for classification and public interest protection into its system.

The following description was composed with excerpts taken and rearranged from printed material prepared by the Forest Service for the Joint Federal-State Land Use Planning Commission in Alaska.

Broadly, National Forests are managed under the 1960 Multiple Use Act, which defines multiple use as "the management of all the various renewable surface resources of the National Forest so that they are utilized in the combination that will best meet the needs of the American people."

Today the National Forest System of 187 million acres includes southern cypress swamps, northeastern hardwood forests, chaparral of the southwest, and the Sitka spruce forest of coastal Alaska. The taiga and tundra of the north are not yet represented.

The National Forest System is more than forests--it includes plains and prairies, meadows, alpine areas, and many other kinds of wildlands. Less than half of National forest areas are commercial timber lands.

Public input is an important part in the Forest Service's multiple use planning process. The agency's programs and management policies for Alaska are briefly described below:

Environmental Planning: The Forest Service brings a large and highly skilled work force to bear on careful environmental analysis and planning as a part of multiple use management. Complex relationships among soils, geology, topographic, climatic and biological factors are assessed by professionals in many disciplines before major developments are

undertaken. The impact of each action is considered to ensure continued productivity and attractive environment. National Forest administrators are backed up by the Forest Service's wildland research organization.

Wildlife and Fish: This key resource is of importance to many. Hunting, fishing, and trapping for subsistence and recreation are permitted on National forest lands and are subject to State laws and regulations. The responsibility for management is shared equally by the State and the Forest Service. The Alaska Department of Fish and Game sets seasons, bag limits, methods and means of harvest and use. The habitat is managed by the Forest Service, who surveys and evaluates food, water and cover conditions, provides for its management and protection and, when needed, may improve both fish and wildlife habitat. Coordination of these management programs ensures a healthy continuing fish and wildlife resource.

Mineral Development: The Forest Service encourages the development of mineral resources on National forests and cooperates with legitimate miners. Exploration and development of "locatable minerals" on National Forest lands include the right to prospect, locate, mine, and remove minerals and obtain patent to the claim. Exploration and removal of the "leasable" minerals such as oil, gas, and coal are granted through leases and permits.

Safeguards to protect the environment are a part of any mineral exploration and development lease or permit on National Forest lands.

Outdoor Recreation: National forests are open to a wide spectrum of recreational activities, ranging from camping in well-developed campgrounds, to back-country hiking, fishing, hunting, and ski touring. Alaska's present National forests already provide a significant portion of the developed camping and picnicking areas in the State. Commercial ski areas, lodges, and resource are permitted where they will enhance recreation opportunities. Over

160 outlying cabins provide a unique quality recreation opportunity for families to enjoy Alaska's great back-country and coastal areas. Over 500 miles of recreation trails have been built.

Timber Management: Timber is an important resource on many National forest lands. Logging is done by private operators under contract with the Forest Service. All aspects of this harvesting process are supervised and regulated to protect the environment. National forest timber is managed on a sustained yield basis to ensure a continuous flow of forest products. Timber harvested from Alaskan National Forests has a major impact on the State and local economy, supporting an important forest products industry.

Special Areas: The Forest Service, through the Secretary of Agriculture, has broad authorities for special classifications of National forest lands. Throughout the system, areas of special interest have been designated as virgin, scenic, geological, historical, botanical, and zoological areas.

National forests may also contain units of the Wilderness Preservation System, Wild and Scenic Rivers, and National Recreation Areas when classified as such by Congress.

Rural Area Development: The Forest Service has a tradition of working actively with local people. Native Corporations will be selecting valuable resource lands. National forests can be managed cooperatively with other landowners. An example would be the supplying of timber or some other resource to supplement production from Native lands to support a local industry. Forest Service specialists provide training and assistance in sawmill operations to rural Alaskan villages for local housing projects. Forest products utilization and marketing specialists can help to develop stable industries. Technical assistance in other areas of natural resource management and environmental protection is also available.

National forests provide jobs on fire crews, in construction and maintenance, and in other skilled work. Environmental education programs assist school teachers.

Research: The Forest Service is responsible for conducting research related to the protection and management of the natural resources. In Alaska, there are two Forest Service research facilities investigating the many problems peculiar to Alaska's environment. At Fairbanks, the Institute of Northern Forestry concentrates on understanding, protecting, and managing the northern forest (taiga) and tundra of Interior Alaska. The Forestry Sciences Laboratory at Juneau studies the environment and the northern coastal zones.

State Selection-Homesites: The Alaska Statehood Act provided for selection by the State of up to 400,000 acres of National forest land for community expansion or establishment and for community recreation uses. Homesite selections are also permitted.

Scenic Protection: Visual impacts of each management activity on National forests (such as timber sales) are assessed and landscape design incorporated in plans. The Forest Service is a leader in scenic area management, employing many landscape architects. Areas of specific interest and those which receive significant public use are zoned to give special consideration to aesthetic values.

Watershed Protection: The Forest Service is responsible for maintaining continuous flows of water from the National Forests. Protection of the valuable watershed vegetation-cover led to the development of a very extensive fire fighting force. Hydrologists and soil scientists assist National forest managers in identifying and properly evaluating critical soil and water problem areas.

Special Uses: People need to use National Forests for many special and varied purposes. National forest lands may be used when the proposed use will not harm the environment and is in accordance with law. Some of the many uses permitted include trapper cabins, commercial fishing sites, water, gas, oil, telephone and power lines (carefully located to protect scenic values), airstrips, roads and trails, sawmill sites, pastures and garden plots. A fee may be charged for private use of these public lands.

VI. INTENSITY OF PUBLIC INTEREST AND CONTROVERSY

A. National Level

The inclusion of sections 17(d) (1) and 17(d) (2) in ANCSA providing for withdrawals of national resource lands for study and for possible additions to the National Park, National Forest, National Wildlife Refuge, and Wild and Scenic Rivers systems must be considered prima facie evidence of the national scope of public interest in the disposition of public lands in the State of Alaska.

Much of the proposed Noatak National Conservation Area is withdrawn under the provisions of sections 17(d) (1) and 17(d) (2) of ANCSA. Numerous articles have appeared in national magazines supporting the establishment of a national park incorporating the Noatak area. National organizations such as the Sierra Club and the Wilderness Society support park status for much of the proposed National Conservation Area.

B. State Level

On the State level there is a vocal minority actively working for establishment of a large national park in the Noatak area. Strongest supporters appear to be the local chapters of the Sierra Club, the Wilderness Society, and the Alaska Conservation Society.

The State government in general opposes limited use management and would prefer that the lands remain under a system of multiple use management. Alaska is essentially in a pioneer era, and the

State government prefers a more open policy on land uses to encourage the establishment of a viable economy. Pockets of severe poverty exist in the state, primarily in the predominantly native areas. Much of the present employment is on a seasonal basis. The state's concern is to encourage sufficient development of lands and resources to maintain a stable economy by year-round employment and reduction of the high poverty level. The state's position is probably generally supported by the business community and many of the local newspapers.

C. Local Level

On the local level, by and large, the feeling probably runs closer to maintaining the status quo. Many of the native communities are fearful that many of their traditional uses of the land may be prohibited or curtailed if a national park or national forest is established in the area. Some local support for national park or national forest establishment is expected, primarily from local members of the national organizations which are supporting the national park proposal.

PART III

PROPOSED OPERATING BUDGET

DEPARTMENT OF THE INTERIOR
Legislative Program Projections

(In thousands of dollars)

<u>Bureau, legislative item, account</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Bureau of Land Management	230	470	535	535	535

New Legislation:

4. Noatak National Conservation Area in Alaska

Cost Analysis

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Area Support	130	265	325	325	325
Special Cost:					
Office & Housing Rental	20	30	35	35	35
Sub-Total	150	295	360	360	360
State Office Support	80	175	175	175	175
Total	230	470	535	535	535

Construction

 Estimated Total Cost \$950,000